# Technics

CD Stereo System
SC-CH610

Operating Instructions
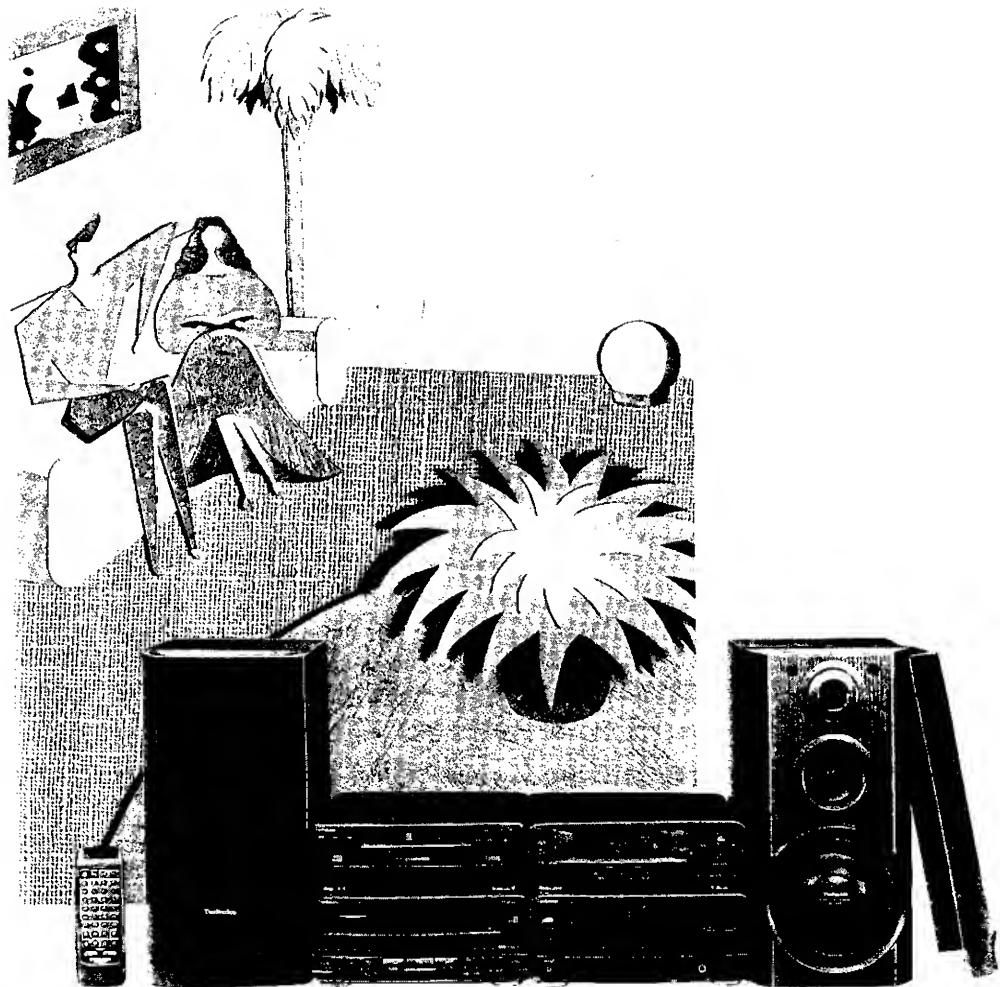
The configuration of the speakers differ according to the areas.

Note:
The "EB" indication shown on the outside packing case indicates United Kingdom.

Before connecting, operating or adjusting this product, please read these instructions completely.

COMPACT
disc
DIGITAL AUDIO

Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these operating instructions carefully.

These operating instructions are applicable to the following systems.

	System	Amplifier	Tuner/ sound processor	CD changer	Cassette deck	Speakers
For United Kingdom	SC-CH610	SE-CH610	ST-CH510	SL-CH610	RS-CH610	SB-CH610
For others					RS-CH510	SB-CH510A

CLASS 1 LASER PRODUCT

(Back of product)

CD changer

DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.
ADVARSEL	USYNLIG LASERSTRALING VED ABNING. NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL AR ÖPPNAD OCH SPÄRREN AR URKOPPLAD. BETRAKTA EJ STRÅLEN
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN
VORSICHT	UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEOFFNET. NICHT DEM STRAHL AUSSETZEN

(Inside of product)
(Indersiden at apparatet)
(Tuotteen sisällä)
(Apparatens insida)
(Produktets innside)
(Im Inneren des Gerätes)

CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE. DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

Suggestions for Safety

■ Use a standard AC wall outlet
1. **Use from an AC power source of high voltage, such as that used for an air conditioner, is very dangerous.**
   A fire might be caused by such a connection.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.

■ Grasp the plug when disconnecting the power supply cord
1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Never place heavy items on top of the power supply cord, nor force it to bend sharply.**

■ Place the unit where it will be well ventilated
Place this unit at least 10 cm (4") away from wall surfaces, etc.
Be careful that curtains and similar materials do not obstruct the ventilation holes.

■ Avoid places such as the following:
In direct sunlight or in other places where the temperature is high. •
In places where there is excessive vibration or humidity.
Such conditions might damage the cabinet and/or other component parts and thereby shorten the unit's service life.

■ Be sure to place the unit on a flat, level surface
If the surface is inclined, a malfunction may result.

■ Never attempt to repair nor reconstruct this unit
A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidentally touched.

■ Take particular care if children are present
Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.

■ If water is spilled on the unit
Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.

■ Avoid spray-type insecticides
Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner
These and similar chemicals should never be used, because they might cause flaking or cloudiness of the cabinet finish.

■ Disconnect the power supply cord if the unit will not be used for a long time
If the unit is left for a long time with the power ON, this not only will shorten its useful operation life, but also may cause other trouble.

■ If trouble occurs
If, during operation, the sound is interrupted or indicators no longer illuminate, or if an abnormal odour or smoke is detected, immediately disconnect the power cord plug, and contact with your dealer or an Authorized Service Center.

Table of Contents

Supplied accessories

AC mains lead .... 1 pc.
   (For United Kingdom: RJA0042-P or VJA0733)
   (For Australia and New Zealand: RJA0036-K)
Remote control transmitter (RAK-CH159WH) .... 1 pc.
Flat cable (long) (REX0511) .... 1 pc.
Flat cable (short) (REX0608) .... 1 pc.
AM loop antenna, antenna holder, screw (RSA0012) .... 1 pc.

FM indoor antenna (RSA0007) .... 1 pc.
Attachment plug (SJP9009) .... 1 pc.
   (For United Kingdom only)
Speaker cords (REE0499) .... 2 pcs.
Remote control batteries (UM-4, "AAA", R03) .... 2 pcs.
Antenna plug (RFE0014) .... 1 pc.
   (Supplied only for Australia and New Zealand)

Caution for AC Mains Lead

(For United Kingdom)

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⟨⟩ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

> ### CAUTION!
> IF THE FITTED MOULDED PLUG IS UNSUIT-ABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE RE-MOVED AND THE PLUG CUT OFF AND DIS-POSED OF SAFELY.
> THERE IS A DANGER OF SEVERE ELECTRI-CAL SHOCK IF THE CUT OFF PLUG IS IN-SERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT
The wires in this mains lead are coloured in accor-dance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or col-oured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

**THIS PLUG IS NOT WATERPROOF—KEEP DRY.**

Before use
Remove the connector cover as follows.
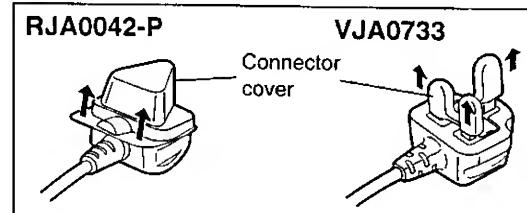
How to replace the fuse
1. Open the fuse cover with a screwdriver.
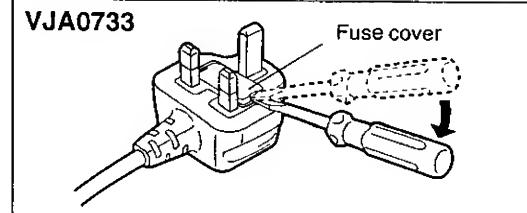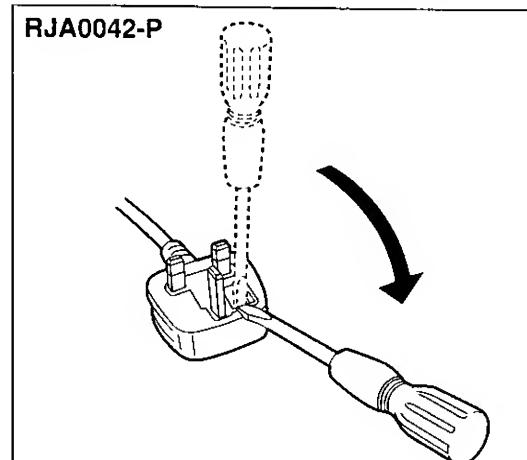
2. Replace the fuse and close or attach the fuse cover.
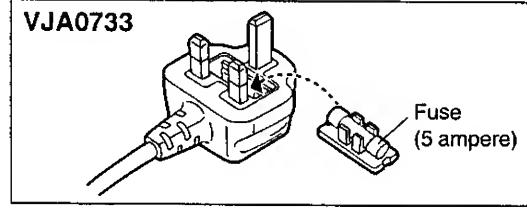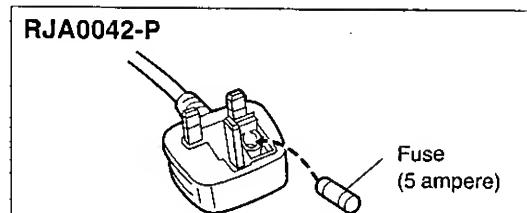
Concerning the Remote Control

Battery installation

Insert the batteries in the correct polarities ($\oplus$, $\ominus$).
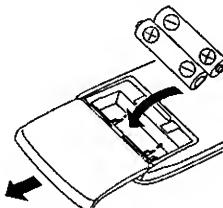
To remove the batteries, pull out the $\oplus$ side.
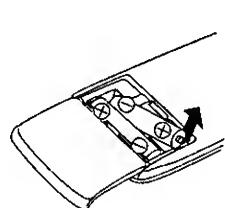
Use of batteries

- Do not mix old and new batteries, or batteries of different types (manganese and alkaline, etc.).
- Never subject batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote control is not to be used for a long period of time, remove the batteries and store them in a cool, dark place.
- Do not attempt to recharge alkaline or manganese batteries.

Battery life

The battery life is about one year.
The batteries should be replaced if commands from the remote control transmitter do not operate the unit even when the transmitter is held close to the front panel.

Correct method of use

Remote control signal sensor

Tuner/sound processor

7m

30°   30°

Remote control transmitter
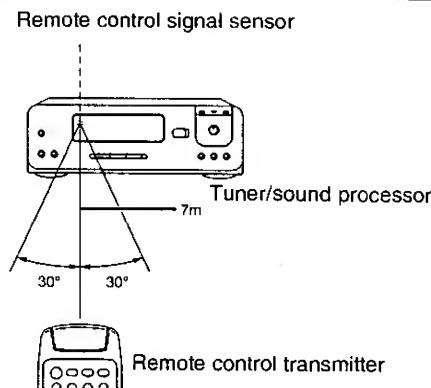
Operation notes

- Aim the remote control's transmission window toward the unit's sensor. Avoid any obstacles.
- Be sure the transmission window and the unit's sensor are free from dust. Excessive dust might affect its performance.
- The operation may not be correct if direct sunlight or other strong light source strikes the receiving sensor of this unit. If there is a problem, place the unit away from the light source.
- If this system is installed in a rack with glass doors, the glass doors' thickness or color might make it necessary to use the remote control a shorter distance from the system.
- Never place heavy items.
- Do not disassemble or reconstruct.
- Do not spill water or other liquids.

Installation

Stacking the components

Install the various components as shown in the illustration.
To produce a better stereo sound, install both speakers away from the system.

Horizontal stacking

For United Kingdom:

Left speaker (SB-CH610)

CD changer (SL-CH610)   Tuner/sound processor (ST-CH510)

Right speaker (SB-CH610)

Cassette deck (RS-CH610)   Amplifier (SE-CH610)

For others:

Left speaker (SB-CH510A)

CD changer (SL-CH610)   Tuner/sound processor (ST-CH510)

Right speaker (SB-CH510A)

Cassette deck (RS-CH510)   Amplifier (SE-CH610)

Vertical stacking

Tuner/sound processor

Amplifier

CD changer

Cassette deck

Connections

For Australia and New Zealand:
The configuration of AC mains lead and speaker terminals are different.

(For UK)
① (−) (+) ②

(For Australia and New Zealand)
① (−) (+) ②

Connect the AC mains lead after you have connected all other cables.

1 Connect the flat cables.

Hold the connector with the recessed part up and press in at the center until you hear a click.

1. Connect the shorter flat cable to A1 and A2.
2. Connect the longer flat cable to B1, B2 and B3.
   Route the cable horizontally (under-neath the heat outlet grille) so that the side with the white-colour lead is positioned at the front.

Heat outlet grille
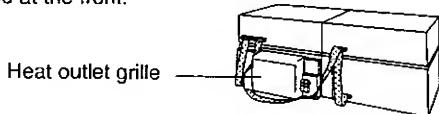
Be sure to connect the blue-colored connector to B1 (tuner/sound processor). After connection, hold and press the cable as flat to the back of the unit as possible. (To minimize noise pickup while listening an MW/LW broadcast)

> Do not try connecting or disconnecting the flat cables while the power is switched to ON.

## 2 Connect the FM indoor antenna.

When you cannot get a good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna (not included).

3 Connect the AM (MW/LW) loop antenna.

1. Attach the antenna holder to the rear panel of the tuner/sound processor. Press the antenna holder hard enough to get it fixed firmly in the place, with a click.
2. Clamp the antenna to the antenna holder.
3. Connect the antenna terminal to the rear panel of the tuner/sound processor.

(After you have connected all other cables)

4. While listening to an MW/LW broadcast, position the loop antenna for the best reception.

You may attach the antenna holder to a rack or other structure. Use a screw (included) to attach as shown in the figure.

Note

To minimize noise pickup, keep the AM loop antenna cord away from the flat cables.

4 Connect the right (R) left (L) speaker cables.

Notes

● Be sure to connect speaker cables before connecting the AC mains lead.
● The load impedance of any speaker used with this unit must be 6–8Ω.
● To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.

● Be sure to connect only positive (+) wires to positive (+) terminals and negative (−) wires to negative (−) terminals.

> **For United Kingdom:**
> BE SURE TO READ THE CAUTION FOR AC MAINS LEAD ON PAGE 4 BEFORE PROCEEDING TO STEP 5.

5 Connect the AC mains lead.

For United Kingdom:
Insertion of Connector
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.
However there is no problem using the unit.

Connector

Approx. 6 mm
Appliance inlet
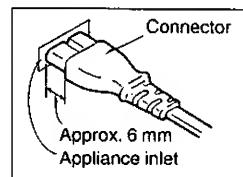
Optional antenna connections

FM outdoor antenna (not included)

You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc.
An outdoor antenna should be installed by a competent technician only.

FM outdoor antenna (not included)

75Ω coaxial cable (not included)

For UK only:
Use the attachment plug (included).

Tuner/sound processor
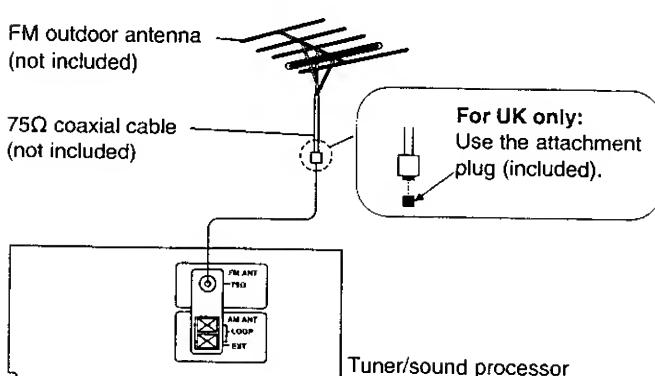
For areas except United Kingdom:
How to use the antenna plug (included)

Two types of wire are most commonly used for connection from the antenna: 300Ω parallel feeder wire or 75Ω coaxial cable. For best resistance to outside interference, the use of 75Ω coaxial cable is suggested.

To connect a 75Ω coaxial cable:

1. Remove a piece of the outer vinyl insulator.

   20mm   10mm

2. Remove the cover while pulling the tabs.

   Note
   If the tabs are pulled too hard, the casing may be damaged.

3. Remove the lead wire.

   Lead wire

4. Clamp the lead wire with the plastic bar.

   Plastic bar

5. Install the coaxial cable.

   Press down with pliers.

6. Attach the cover and connect the antenna plug.
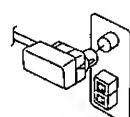
To connect a 300Ω feeder wire:
Loosen the screw to connect the feeder wire and tighten it to secure the connection.

300Ω feeder wire (not included)
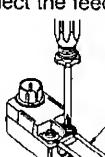
AM (MW/LW) outdoor antenna (not included)

An outdoor antenna may be required in a mountainous region, or if this system is located inside a reinforced-concrete building, etc.
Connect the outdoor antenna without removing the AM loop antenna. Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.

Do not remove the AM loop antenna.

|— 5–12m —|
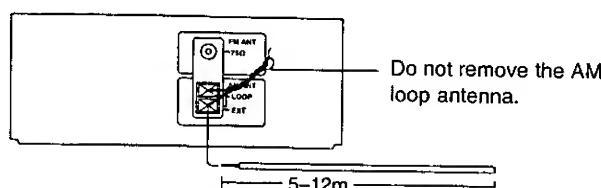
External unit connection

For details, refer to the Operating Instructions of the units which are to be connected.
When units other than those described below are to be connected, please consult with your audio dealer.

Connecting the stereo connection cable (not included)
Connect the red plug to the right (R) connector.
Connect the white plug to the left (L) connector.

DCC (digital compact cassette deck)

DCC (not included)

REC PLAY (IN) (OUT)
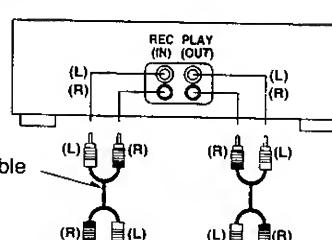
Stereo connection cable (not included)

Tuner/sound processor

DCC REC PLAY (OUT) (IN)
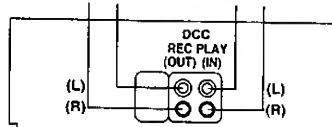
Analog player

This example shows how to connect the analog player with the PHONO OUT/LINE OUT switch.

For United Kingdom:
"GND" terminal is for a ground wire use.
Set the PHONO OUT position at the back of the analog player.

Analog player (not included)

"PHONE OUT" position

"GND" terminal

Tuner/sound processor

GND
PHONO
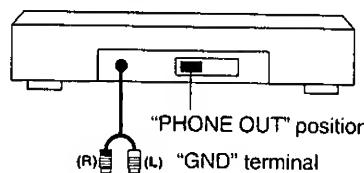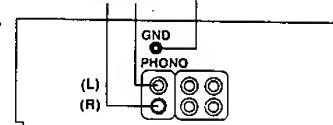
For Australia and New Zealand:
Only an analog player with a built-in phono equalizer can be connected.
Set the LINE OUT position at the back of the analog player.

Location of Controls

Amplifier section
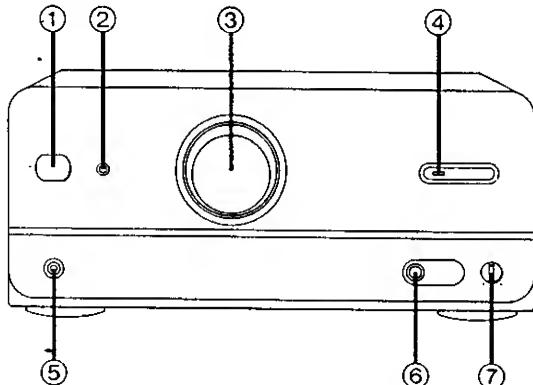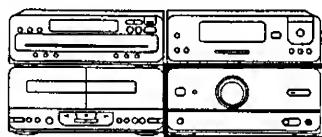
No.	Name	Ref. page
①	**Power "STANDBY ⏻/ON" switch (POWER, STANDBY ⏻/ON)**	10
	Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.	
②	**Standby indicator (STANDBY)**	
	When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.	
③	**Volume control**	13
④	**Power indicator**	
⑤	**Headphones jack**	36
⑥	**Microphone jack**	35
⑦	**Microphone volume control**	35

CD changer section
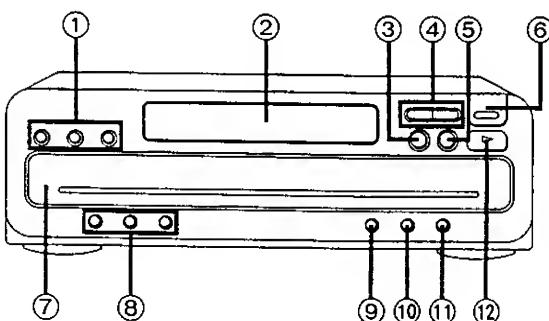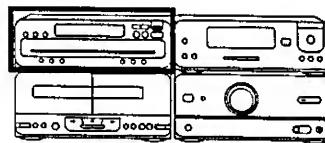
| No.	Name	Ref. page
①	**Disc buttons**	15
②	**Display section**	
③	**Stop button**	14
④	**Skip/search buttons**	16
⑤	**Pause button**	14
⑥	**Disc tray open/close button**	14
⑦	**Loading drawer**	14
⑧	**CD edit buttons**	25
⑨	**Display mode button**	15
⑩	**Random play button**	16
⑪	**Repeat button**	15
⑫	**Play button and indicator**	14

About the illumination guide

Orange indicators on the buttons guide you to the easiest steps toward listening pleasure.
- To listen to a radio broadcast:
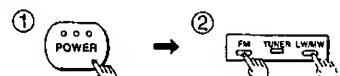


- To listen to a compact disc:

- To listen to a tape:
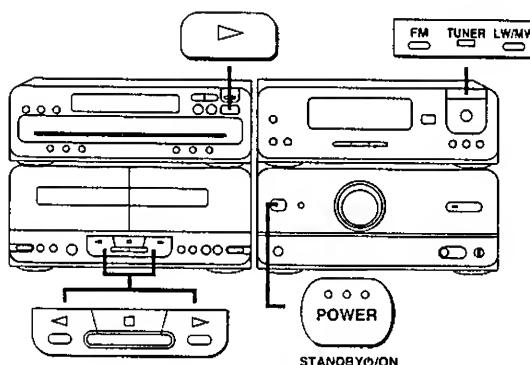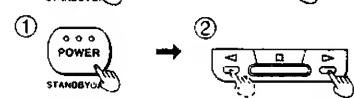
## Tuner/sound processor section
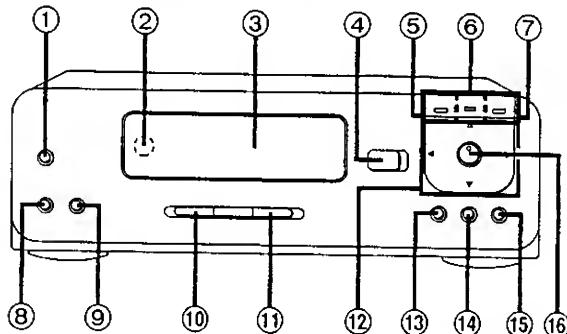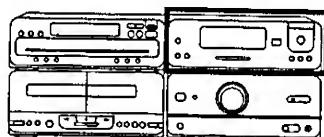
No.	Name	Ref. page
①	Auto preset button	11
②	Remote control signal sensor	5
③	Display section	
④	Source input select button	36
⑤	FM button	12, 13
⑥	Tuner indicator	13
⑦	LW/MW select button	12, 13
⑧	Flat button	21, 29
⑨	EQ SPACE mode select button	21, 29
⑩	KARAOKE mode select button	35
⑪	V. bass button	29
⑫	Tuning/select button and indicators	10
⑬	Clock/timer button	10, 30
⑭	Record timer button	33
⑮	Play timer button	31
⑯	Set button and indicator	10

Cassette deck section
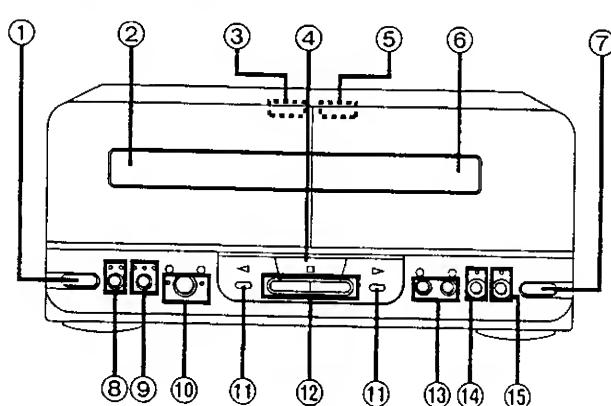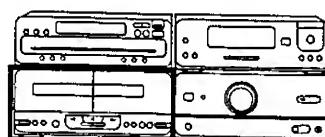
No.	Name	Ref. page
①	Deck 1 holder open button	18
②	Deck 1 cassette holder	18
③	Deck 1 holder close button	18
④	Stop button	18
⑤	Deck 2 holder close button	22
⑥	Deck 2 cassette holder	22
⑦	Deck 2 holder open button	22
⑧	Dolby noise reduction button and indicators	18
⑨	Reverse mode button and indicators	18
⑩	Deck 1/deck 2 select button and indicators	18
⑪	Playback buttons and indicators	18
⑫	Fast forward/rewind/tape program sensor buttons	19
⑬	One-touch tape edit buttons	28
⑭	Record pause button and indicator	22
⑮	CCRT button and indicator	22

Setting the Time

This is a 24-hours display clock.
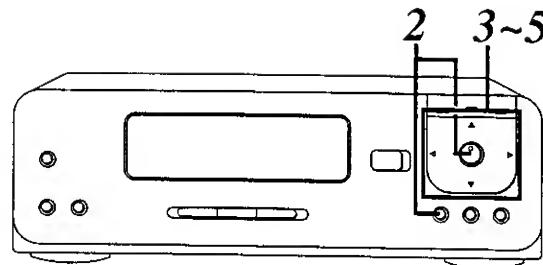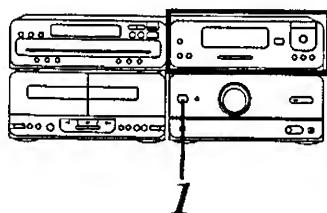
These instructions explain how to set the timer for 16:25 (4:25 p.m.) on Wednesday.

1
Switch on the power.
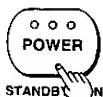
2
① Press CLOCK/TIMER to show "CLOCK".

" CLOCK "
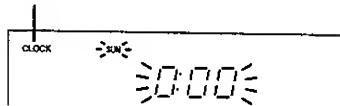
Within 8 seconds:
② Press SET.

3
① Press ◁ SELECT or SELECT ▷ to select the day.
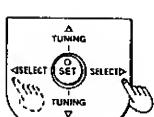
Note
Press the appropriate indicator (◁ or ▷) on the button.

② Press SET.

4
① Press ◁ SELECT or SELECT ▷ to select the hour.
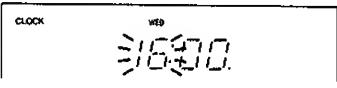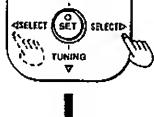
② Press SET.

5
① Press ◁ SELECT or SELECT ▷ to select the minutes.
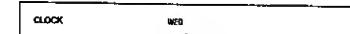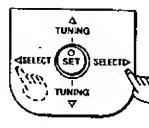
② **Press SET to finish setting the time.**
The display will return to the previous display after about 2 seconds.

When "SUN 0:00" flashes:
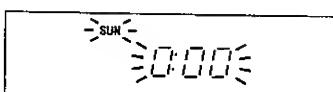
It flashes when you connect the AC mains lead for the first time or if there has been a power failure.
If this happens, reset the time.

If the minutes setting has gone wrong:
1. Press CLOCK/TIMER.
2. Press SET 3 times.
3. Press ◁ SELECT or SELECT ▷ to set the minutes, and then press SET.

To display the clock again:
Press CLOCK/TIMER.
The clock display will appear for about 8 seconds.

Memory Presetting

This feature allows you to set broadcast frequencies into the memory.

You can then easily retrieve any of those broadcast frequencies by pressing ◁ SELECT or SELECT ▷ on the tuner/sound processor.

Automatic memory presetting

The frequencies are automatically preset (in sequence from lower to higher frequencies) into the memory: "channels" 1 to 39 are available for the presetting of FM stations, "channels" 21 to 39 are available for MW stations and "channels" 31 to 39 are available for LW stations.

POWER

AUTO PRESET
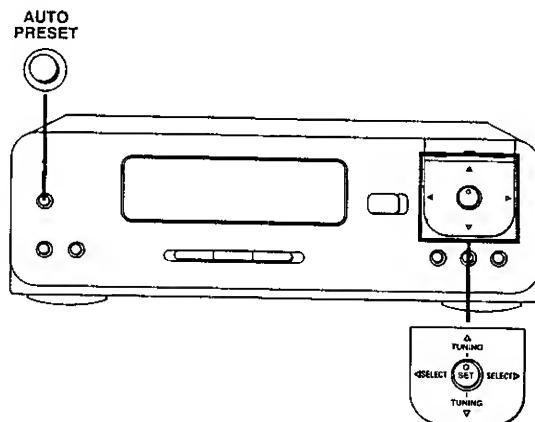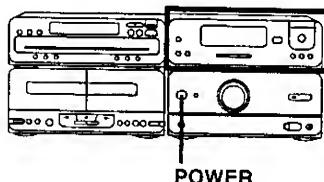
Switch on the power.

AUTO PRESET

Press AUTO PRESET.
The broadcast frequencies are automatically preset into memory of FM, MW and LW in turn.
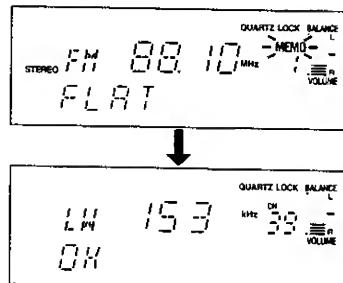
After completing the automatic memory presetting, the display shows "SET OK" and the last preset frequency.

To make an automatic memory presetting over again:
1. Press and hold AUTO PRESET.
   "CLEAR" display will appear. (The previous memory is cleared.)
2. Press AUTO PRESET.

To confirm the preset stations:
Press ◁ SELECT or SELECT ▷.
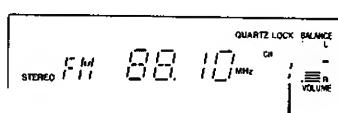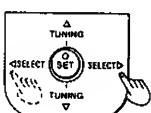
Preset channel

When "ERROR" lights:
Automatic memory presetting is unsuccessful. In such case, carry out presetting manually. (See page 12.)

To preset only one band into channels 1–39:
Example: FM
1. Press FM to select FM.
2. Press ▽ TUNING or TUNING △ to tune in the broadcast you begin memory presetting.
3. Press and hold SET.

Note

When you preset a broadcast station to a channel that has already been preset, the previous presetting will be erased.

MW allocation settings:
(Only on the main unit)
This unit comes equipped with an electronic digital tuner that divides the broadcast band into many small steps. These steps match the assignable broadcast frequencies and intervals in between.
Each country allocates (assigns) broadcast bands according to their particular needs.
By adjusting the allocation, you can change the setting from 9 kHz steps to 10 kHz steps.
1. Press LW/MW to select MW.
2. Press and hold LW/MW for approximately 3 seconds.

To return to the original frequency indication, repeat steps 1 and 2.

Preset memory contents maintenance:
The contents of the memory will continue to be stored for approximately 2 weeks, even if the power supply cord is disconnected.

Note

Correct presetting may not be possible in cases where the broadcast waves are too strong or too weak. In such cases, carry out presetting manually. (See page 12.)

Memory Presetting

Manual memory presetting

This feature allows you to preset manually broadcast stations into any desired channel.
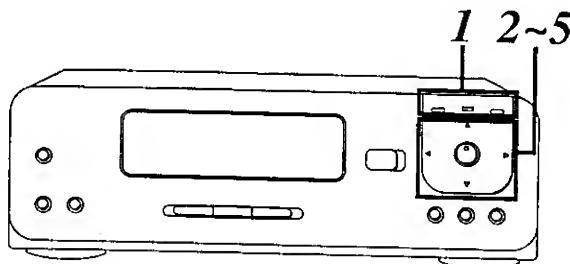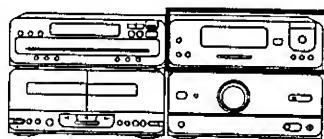
This example in the figure shows how to memorize FM 88.10 MHz into preset channel 1.

1 Press FM or LW/MW to select FM, MW or LW.
Each time you press LW/MW, "MW", "LW" will appear alternately.
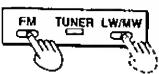
2 Press ∇ TUNING or TUNING △ to tune in the desired broadcast.
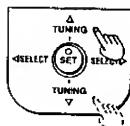
Note

Press the appropriate indicator (∇, △) on the button.
If you don't select a specific indicator, another operation may be selected.

" QUARTZ LOCK "

" STEREO "

"STEREO" lights when an FM stereo broadcast is being received. "QUARTZ LOCK" lights when you precisely tune in a broadcast station.

3 Press SET momentarily.
"MEMO" will light.
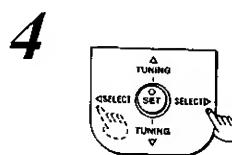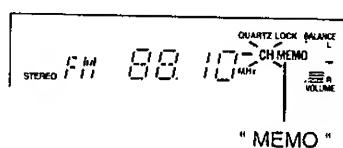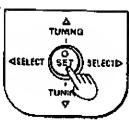
" MEMO "

4 Press ◁ SELECT or SELECT ▷ to select the desired preset channel.
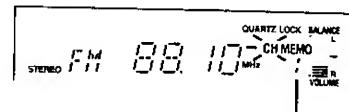
Preset channel
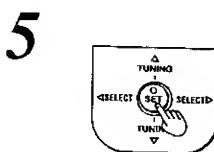
5 Press SET momentarily.
"MEMO" will go out.

Automatic scanning:
Press and hold ∇ TUNING or TUNING △ until the displayed frequency begins to change.
●The changing of the displayed frequency will automatically stop if a broadcast station frequency is located during the tuning process.
●When there is excessive interference, the automatic scanning may not function.
To cancel the automatic scanning, press ∇ TUNING or TUNING △ once again.

About the frequency step:
The frequency display will change as follows:
FM: 0.05 MHz step
MW: 9 kHz or 10 kHz step
LW: 9 kHz step

2

Listening to Radio Broadcasts

POWER 3

1 2
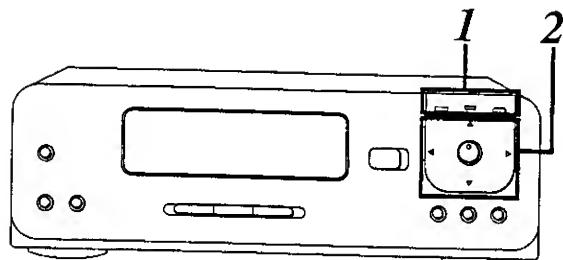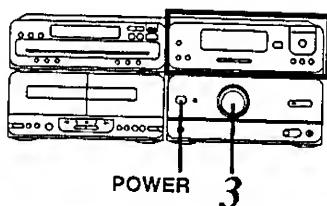
Manual tuner operation

Switch on the power.
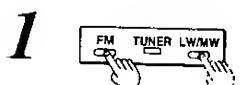
1 **Press FM or LW/MW to select FM, MW or LW.**
Each time you press LW/MW, "MW", "LW" will appear alternately.
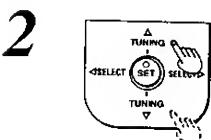
2 **Press ▽ TUNING or TUNING △ to tune in the desired broadcast.**

" QUARTZ LOCK "
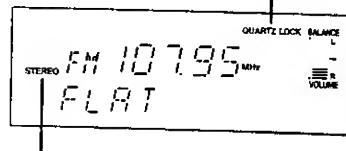
STEREO FM 107.95 MHz

FLAT

" STEREO "

"STEREO" lights when an FM stereo broadcast is being received. "QUARTZ LOCK" lights when you precisely tune in a broadcast station.
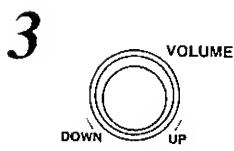
3 **Adjust the volume as you like.**

VOLUME
DOWN   UP

-40 dB
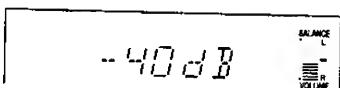
About the TUNER indicator:
While listening to radio broadcasts: Lights in green.
While listening to a CD or tapes: Lights in orange.

Memory tuner operation

Be sure you've completed the steps of "Memory presetting" on page 11 or 12.

Press ◁ SELECT or SELECT ▷ to select the desired preset channel.

STEREO FM 88.10 MHz
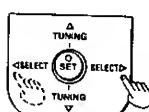
Preset channel
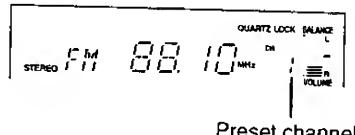
If noise is excessive in the FM mode:
(Available only from the remote control)
Press AUTO/MONO on the remote control to select "MONO".
The sound will then be heard in monaural. If the broadcast signal is weak, or if there is a large amount of interference, you will get a clearer sound using MONO function.

AUTO/MONO

MONO FM 107.95 MHz
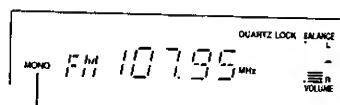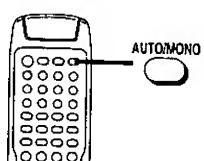
" MONO "

To preset FM stations in monaural position:
1. Select the desired frequency.
2. Press AUTO/MONO on the remote control to select "MONO".
3. Follow the procedure 3-5 on page 12.

Listening to Compact Discs

Sequential play

POWER **4**

1•2 **3**

□ □□
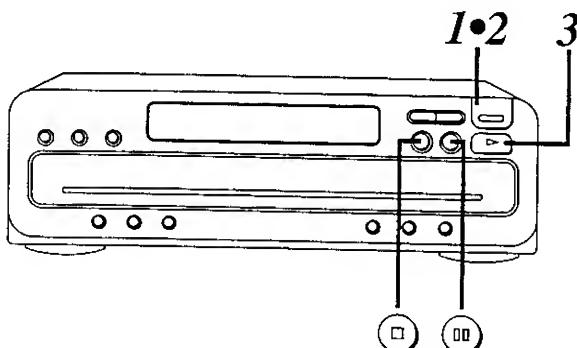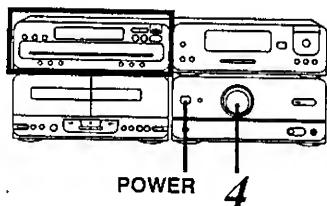
Switch on the power.
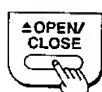
1
Press ▲ OPEN/CLOSE to open the loading drawer. Insert the CD with label facing upward.

Label must face upward.

Carrousel

Disc number
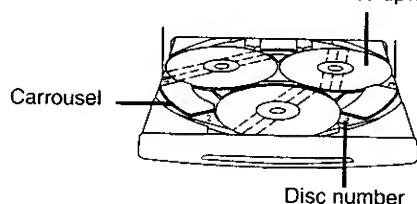
Do not load 8 cm and 12 cm discs on the same disc tray.
Be sure to load a 8 cm disc correctly at center position.

2
Press ▲ OPEN/CLOSE to close the loading drawer.

3
Press ▷.

Currently playing track
Currently playing disc

Elapsed play timer
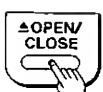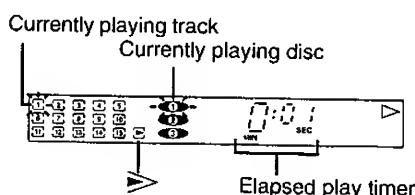
Disc play begins from the first track on the first disc.
Play stops automatically when the last track on the last disc finishes playing.

4
VOLUME
DOWN   UP
Adjust the volume level as you like.

-40dB   BALANCE L / R VOLUME
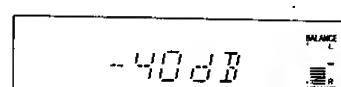
To stop the disc play:
Press □.

To temporarily stop the disc play:
Press □□.
"**II**" indicator lights.
To play again, press ▷.

When "▷" appears on the display:
It indicates there are 16 or more tracks on the disc at the playing position.

Concerning the total playing time on the display:
The total play time including the gaps between the tracks is indicated. This is why the time may be several seconds longer than the figure given in the liner notes, etc.

For your reference:
●If you press ▷ instead of ▲ OPEN/CLOSE after inserting disc(s), the loading drawer will close and play will start directly.
●About ▷ indicator:
While halted: Lights up orange.
While playing: Lights up green.

4

Slit   Hole
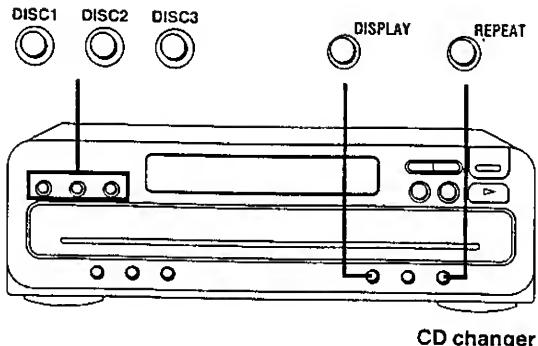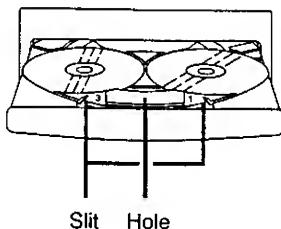
Note

Avoid following things to prevent the malfunction or incorrect operation.
● Do not push the loading drawer to close.
● Do not cover the hole or slits.
● Do not turn the tray forcibly by hand because it may fail to operate normally.
● Do not move this changer with a compact disc inside the unit. If a disc comes off the disc tray, it might be scratched or the changer might become incapable of playing.

To exchange discs during play

While a disc is playing, you can exchange discs.
1. Press ▲ OPEN/CLOSE during playing.
   The loading drawer will open at half position.
2. Exchange the discs.
3. Press ▲ OPEN/CLOSE again to close the loading drawer.

After the last track on the current disc finishes playing, the changer will play all the remaining disc(s) loaded, and then stop.

For your reference:

If you play a disc with the loading drawer open, the changer will automatically stop when the last track on the current disc finishes playing.

Notes

● Do not insert another disc onto tray placed at ①, although the tray is partially showing, its disc is in the play position.

①
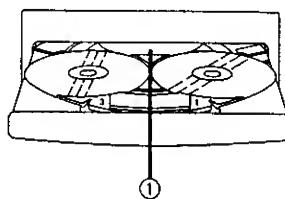
● To open fully, follow the procedure below.
1. Press □.
2. Press ▲ OPEN/CLOSE to close the loading drawer.
3. Press ▲ OPEN/CLOSE again to open the drawer.

CD changer

To select the desired discs

Press DISC 1, DISC 2 or DISC 3 to select the disc which you want to play.

The play will automatically start from the first track of the disc you select.

To confirm the total playing time of the disc currently playing

Press DISPLAY.

The display will change (as described below) each time you press the button.

In the stop mode:
① The display shows the total playing time of the disc at the playing position.
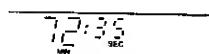
② The display shows the disc number and the total track number of the disc at the playing position.
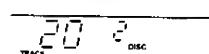
In the play mode:
① The display shows the track number of the disc currently playing.
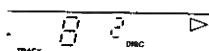
② The display shows the elapsed time of the track currently playing.
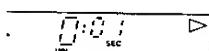
Repeat function

This function repeats the play of all tracks on the loaded discs.

Press REPEAT before or during play.
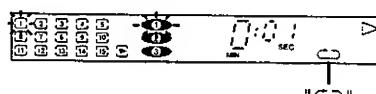
In sequential play mode:
(See page 14.)
All tracks of all discs will be played repeatedly.

In program play mode:
(See pages 17.)
The changer plays only the programed selections in the programmed sequence continuously.
You can enjoy the same track over and over if you press REPEAT when only one track is programmed.

To cancel repeat play, press REPEAT once again.

15

Listening to Compact Discs

-SKIP/-SEARCH

RANDOM

CD changer
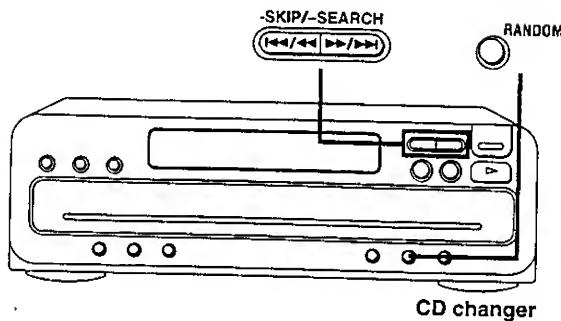
Skip function

Press either ⏮/◀◀ or ▶▶/⏭ until you reach the desired track.

▶▶/⏭: To skip forward

You can skip as many tracks as the number of times you press the button.

⏮/◀◀: To skip backward

You can skip to the beginning of the track being played. If you press this button again quickly, you can skip to the beginning of the previous track.

Note that in a backward skip, the current track is included in the count.

For your reference:

In program play mode you can skip only the programmed tracks.

Note

In random play mode, you cannot skip to the previous track.

Search function

You can rapidly search forward or backward on the disc for specific sections.

While in play mode, press and hold either ⏮/◀◀ or ▶▶/⏭. Release the button when you have reached the desired point.

▶▶/⏭: To search forward

⏮/◀◀: To search backward

For your reference:

During program play and random play, search will take place within the track being played.

Random play

The changer will randomly choose a track from a randomly selected disc.

RANDOM

Press RANDOM.

Random play will start.

"RANDOM"

The changer will stop automatically when all tracks on all the loaded discs have been played.

To cancel random play, press RANDOM once again.

The changer resumes the sequential play mode.

For your reference:

In the program play mode, the programmed tracks will be played randomly.

Direct access play

(Available only from the remote control).

Direct access allows you to start sequential play from a specific track on a specific disc and to play all discs loaded in sequence.
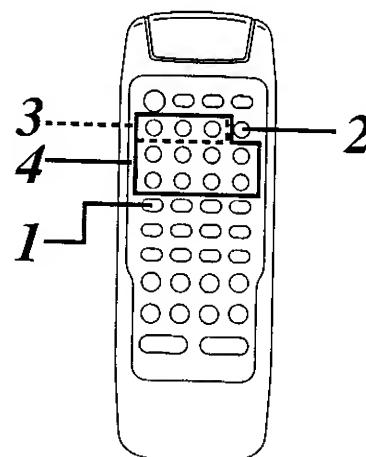
This example shows how to start the play from the 8th track of the disc 2.

1 CD **Press CD:**

2 DISC **Press DISC.**

Flashes.
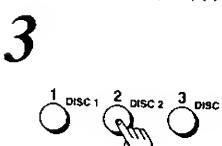
3 **Press one of the disc buttons (1–3) to specify which disc contains the track you wish to play.**

Disc number
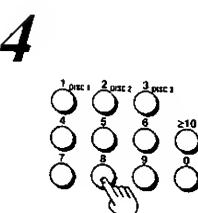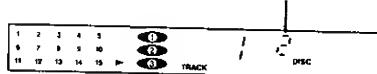
4 **Press the numeric button to select the desired track number.**

Play begins with the track selected and continues to the end of the last disc loaded, and then stops.

Flashes.
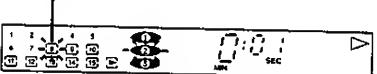
To select a two-digit track:

Press ≥10, and then press the numeric button corresponding to the desired track number.

For example:

Track 13: ≥10→1→3

Track 20: ≥10→2→0

Program play

(Available only from the remote control)

This function allows you to program up to 24 tracks from the loaded disc(s) in any order you choose.
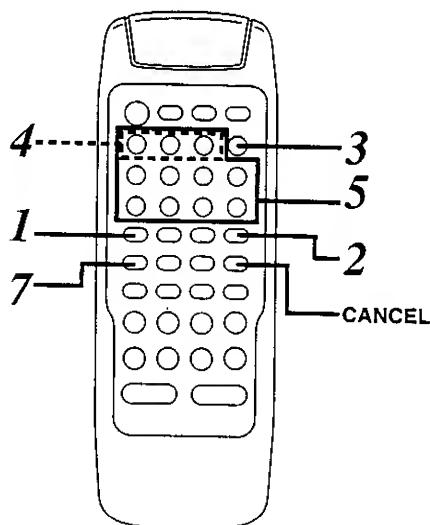
This example shows how to program track 3 of disc 2, track 5 of disc 3 and track 7 of disc 1.
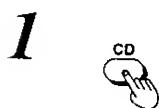
1 Press CD.
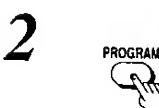
2 Press PROGRAM.
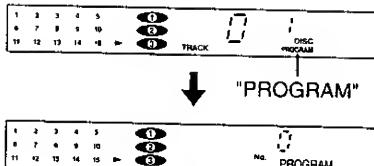
↓ "PROGRAM"

3 Press DISC.
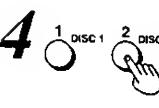
4 Press one of the disc buttons (1–3) to select the disc.
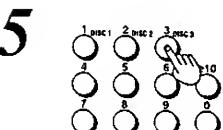
5 Press the numeric button to select the track you want to play.

Programmed track number

↓ Programmed order
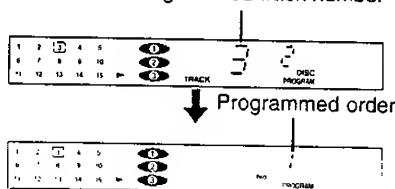
6 Repeat steps 3–5 until you have completed the program.

7 Press ▶ to start play.
Play will automatically stop after playing the last track you programmed.

To cancel program play:
Press PROGRAM.
The compact disc changer resumes sequential play mode.

To select a two-digit track:
Press ≥10, and then press the numeric button corresponding to the desired track number.
For example:
Track 13: ≥10→1→3
Track 20: ≥10→2→0

To add an entry:
Repeat steps 3 to 5.

When "F" appears on the display:
The number of programmed tracks is limited to 24. No further tracks can be programmed.

To clear a programmed track one by one:
1. Press CANCEL.
   CANCEL indicator will light.
2. Press DISC.
3. Press a disc button (1–3) to specify the disc which contains the track you want to cancel.
4. Press a numeric button corresponding to the track you want to cancel.
5. Press CANCEL.
   CANCEL indicator will go out.

(Using |◀◀ or ▶▶| buttons on the remote control)
1. Press CANCEL.
   CANCEL indicator will light.
2. Press |◀◀ or ▶▶| repeatedly until the display shows the track number you want to cancel.
3. (Within 10 seconds)
   · Press CANCEL.
4. Press CANCEL.
   CANCEL indicator will go out.

To clear all tracks:
Press ■ once in the stop mode or twice in the play mode.

For your reference:
The unit's memory will retain the programmed sequence until you cancel it by opening the loading drawer or by pressing the stop button in the stop mode. The sequence will remain in the unit's memory for approximately 2 weeks.

Listening to Tapes

Playback

You can use normal, chrome and metal tapes.
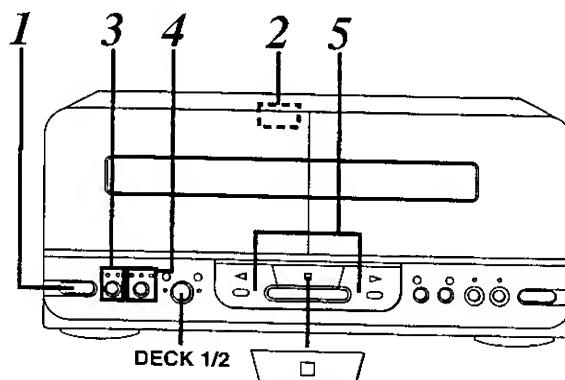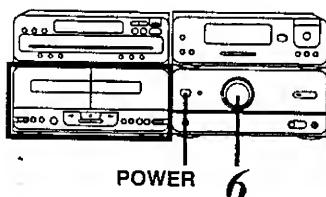
POWER **6**

DECK 1/2

This page shows an example using deck 1.

Switch on the power.

1 **▲ OPEN**
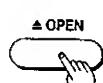
Press ▲ OPEN on deck 1, and then insert the tape.
Insert the tape with the exposed tape facing down.

Front side

2 **CLOSE**
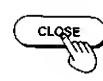
Press CLOSE on deck 1 to close the cassette holder.
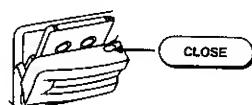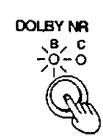
CLOSE

3 **DOLBY NR**
B C
-O- O

Press DOLBY NR to select the desired noise-reduction system.
Each time you press the button, the indicator will change as follows:

For United Kingdom:
B→C→go off (DOLBY NR OFF)

For others:
IN→OUT
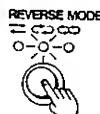
4 **REVERSE MODE**

Press REVERSE MODE to select the reverse mode.
Each time you press REVERSE MODE, one of the indicators will light up.
⊏⊐: The deck plays one side only, and then the tape automatically stops.
⊂⊐: The deck plays both sides 8 times, and then the tape automatically stops.
⊂⊃: The deck plays both sides of the tape, and then automatically stops.
When you load tapes into both decks; sequential playback will be made. (See page 19.)

5
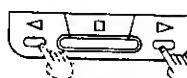
Press ◁ or ▷.
▷: The forward side (front side) will play.
◁: The reverse side will play.

6 **VOLUME**
DOWN   UP

Adjust the volume level as you like.

-- ЧΠ⌐ Ь
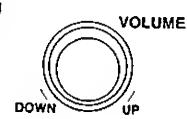
BALANCE
L
VOLUME
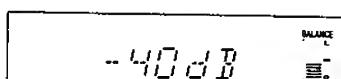
To stop tape playback:
Press □.

To change the deck to be used:
Press DECK 1/2 to select the deck you want to use.

About the ◁ and ▷ indicators:
While halted, fast forwarding, or rewinding:
Lights up orange.
While playing, recording or finding the beginning of a program:
Lights up green.

DECK 1/2 ◄◄(TPS) [] (TPS)►►

Cassette deck
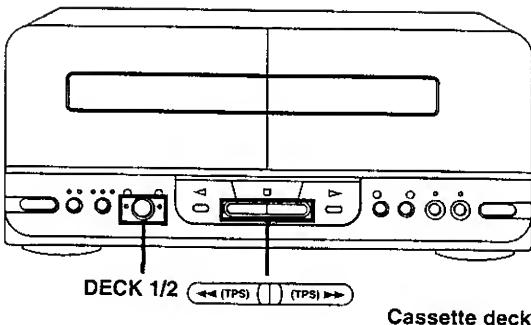
To find the beginning of a program (TPS: Tape Program Sensor)

Press ◄◄ (TPS) or (TPS) ►► while the tape is playing.

If the forward side (▷) is playing:

(TPS) ►► : The tape will be played from the beginning of the next tune.

◄◄ (TPS): The tape will be rewound to the beginning of the present tune. Then the tune will play again.

Note

TPS is the function that searches for the silent passage in a tape program. So, it may sometimes fail to operate correctly in the following situations:

●When there is no blank space between tape programs (for example, a tape recorded from a microphone)
●When the interval between programs is less than 4 seconds
●When there is a particular low-level passage in a program (for example, classical music)
●When the program is less than 10 seconds, or when it is less than 10 seconds from the beginning of the program to the beginning of the next tune
●When a tape recorded with fade-ins or fade-outs

To fast forward or rewind the tape

Press ◄◄ (TPS) or (TPS) ►► while the tape is in the stop mode.

If the forward side (▷) of the tape is playing:

(TPS) ►► : The tape will be fast forwarded.

◄◄ (TPS): The tape will be rewound.

High-speed rewind/fast-forward:

The deck rewind/fast-forward the tape with high-speed (for approximately 2 times the normal speed) when:

●The deck rewinds from around the end of the tape
●The deck fast-forwards from around the beginning of the tape

For your reference:

●Each decks' play direction is stored in the system's memory.
●The deck may sometimes make the high-speed rewind/fast-forward from around the midway of the tape.
●You can fast forward or rewind the tape while you are playing or recording a tape in another deck. Press DECK 1/2 to switch to the non playing deck, and then press ◄◄ (TPS) or (TPS) ►►. After above operation, be sure to press DECK 1/2 to select the deck in which you are playing a tape.

Sequential playback among 2 tapes
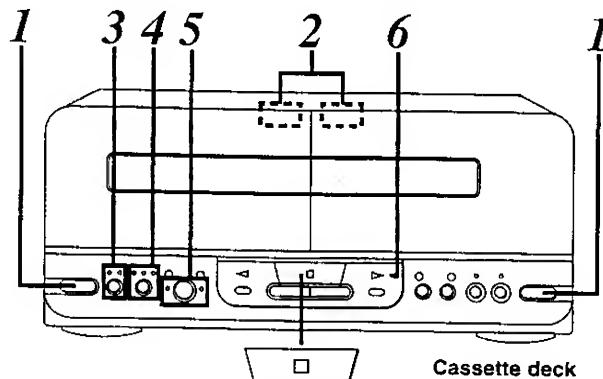
Cassette deck

1 Press ▲ OPEN on decks 1 and 2, and then insert the tapes.
Load with the side that you wish to listen to first facing you in deck 1.

2 Press CLOSE to close each deck's cassette holder.

3 Press DOLBY NR to select the desired noise-reduction system.
Each time you press the button, the indicator will change as follows:
For United Kingdom:
B→C→go off (DOLBY NR OFF)
↑_____|

For others:
IN→OUT
↑____|

4 Press REVERSE MODE to select "⊂⊃⊂⊃" mode.

5 Press DECK 1/2 to select deck 1.
The deck 1 indicator will light up.

6 Press ▷.
Forward side of tape in deck 1 ◄─────
↓
Reverse side of tape in deck 1
↓
Forward side of tape in deck 2
↓
Reverse side of tape in deck 2────┘

After repeating above operation 8 times, the tape will automatically stop.

To stop tape playback:
Press □.

For your reference:
●You cannot select Dolby NR for deck 1 and 2 respectively. We recommend you use tapes of the same type (Dolby noise reduction).
●You can also start playback from a position other than the forward side in deck 1.

About priority of the deck:
When you load tapes in both decks, deck 1 or 2 indicator will light to show which deck you loaded last.
When you switch on the power, deck 1 indicator will light.

19

Convenient Functions
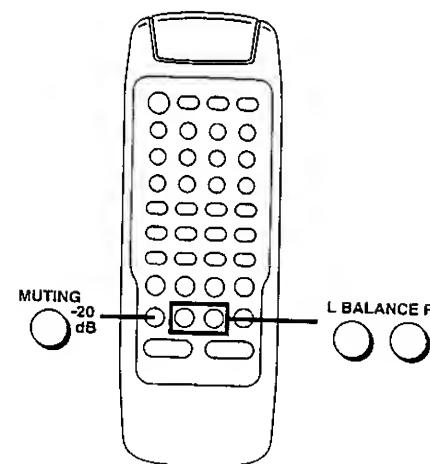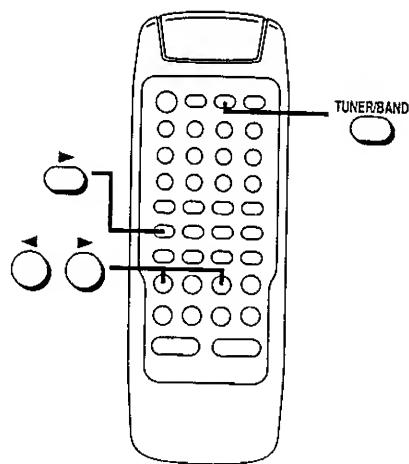
Easy play

(Available only from the remote control)

From the power standby condition, you can start play directly.
The play will start with volume increasing gradually.

Listening to compact discs

Press ►.
The play will start from the first track.

Listening to radio broadcasts

Press TUNER/BAND.
You can receive the station last tuned in.
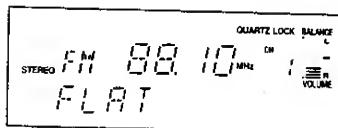
Listening to tapes

Press ◄ or ►.
● Playback will automatically start under the same conditions (reverse mode) as last set.
● When tapes have been loaded in both decks, deck 1 has priority.

To mute the volume

(Available only from the remote control)

Press MUTING −20 dB.
"MUTING" will light.
This feature is convenient when you have a telephone call, etc.
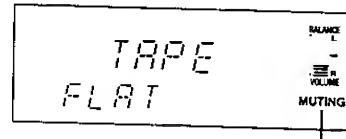
" MUTING "

● To cancel, press MUTING −20 dB once again.
● To cancel from the amplifier, reduce the volume level to the minimum position (−− dB) and then reset to the desired volume.

To adjust the left-right volume balance

(Available only from the remote control)

Press L or R of BALANCE.
The display shows "▲" or "▼".

Pressing L and R of BALANCE simultaneously will restore the balance to the center position.

For Your Recording

Concerning cassette tapes:
You can use normal, chrome, and metal tapes for playback and recording. The deck automatically identifies the kind of tape loaded, and sets the bias (for recording), recording level, equalization accordingly.

To take up the leader tape

The leader tape is the first few revolutions that you cannot record on.

Magnetic tape
(recording can be made)

Leader tape
(no recording can be made)
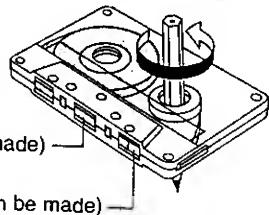
About CCRT function

CCRT (Computer Control Record Tuning) is the function which identifies the quality of the tape automatically and sets the most desirable recording condition.
The CCRT setting will remain in the systems memory even after the power is switched to the standby mode.
The display shows the CCRT setting conditions as follows:

① Bias setting

```
    BIAS
```
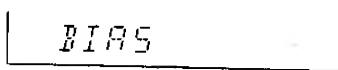
② Recording level setting

```
    LEVEL
```
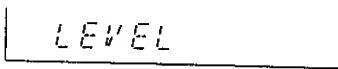
③ Recording equalizer setting

```
    EQ
```

④ CCRT setting completed: "SET OK"

```
    OK
```

●You can make recording in constant tone quality with use of CCRT function regardless of the different characteristics.

Note

Do not insert or remove the tape after the CCRT setting has completed. It cancels the CCRT setting.
The CCRT setting may not be possible with the old tape or at around the end of tape. (The CCRT indicator starts to flash in a high speed.) In this case, press □ to cancel the CCRT setting (the CCRT indicator goes out).

To cancel the CCRT setting on the way:
Press □.

To cancel the CCRT mode after the CCRT setting has completed:
Press CCRT.
The CCRT indicator goes out.

To record with the desired tone quality

FLAT   EQ SPACE   Tuner/sound processor
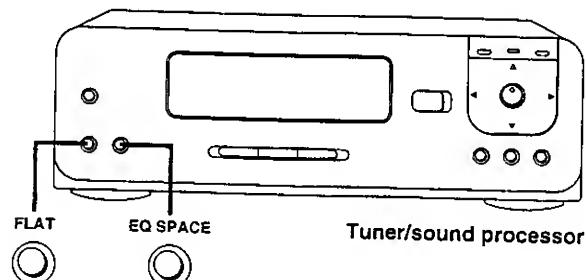
To record with the desired equalization curve, follow the procedure below.
1. Select the desired equalization curve CAR or HP ST. (See page 29.)
2. Follow the procedure of recording.

Note

When playing back such recordings, press FLAT to set to "FLAT". You can not record with HALL, HEAVY or CLEAR mode.

To record without any tonal effect:
Press FLAT to set to "FLAT".

To erase a recorded sound

1. Disconnect the microphone if it was connected.
2. Press SELECTOR to select "TAPE".
3. Press DOLBY NR so that DOLBY NR B or C indicator goes out. (For areas except United Kingdom; DOLBY NR OUT indicator lights up.)
4. Insert the recorded tape into deck 2.
5. Press REVERSE MODE to select reverse mode.
6. Press REC PAUSE.
7. Press ◁ or ▷.

About Dolby Noise Reduction system:
The Dolby noise-reduction system is designed to effectively reduce the annoying high-frequency "hissing" noise typical of cassette tapes. During recording, the system functions to increase the high-frequency sound level, the sound, and then, during playback, that same portion is weakened to bring it back to the previous level.
For United Kingdom
This unit includes two types of Dolby noise-reduction systems, the Dolby B NR-type and C NR-type.
For others
This unit includes one type of Dolby noise-reduction systems, the Dolby B NR-type.

Dolby B-type noise reduction
Noise is reduced to about one-third.
Use this system when playing back tapes recorded by the Dolby-B noise-reduction system, such as prerecorded music tapes, etc.
Dolby C-type noise-reduction
Noise is reduced to about one-tenth.
Use this system for the recording and playback of sound sources that have a wide dynamic range and good tone quality, such as FM broadcasts of live performances, etc., and for playing back such tapes.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ▷◁ are trademarks of Dolby Laboratories Licensing Corporation.

Making a Recording from Radio Broadcasts
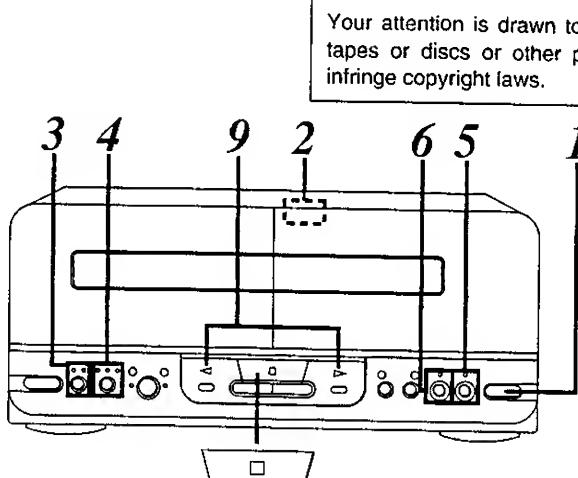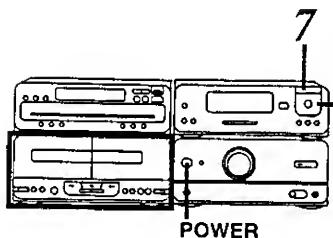
POWER

The leader tape must be wound up before-hand. (See page 21.)

Switch on the power.

1 ▲OPEN

Press ▲ OPEN on deck 2, and then insert the tape.
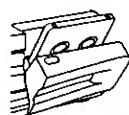
2 CLOSE

Press CLOSE on deck 2 to close the holder.
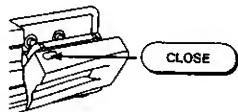
3 DOLBY NR

Press DOLBY NR to select the desired noise-reduction system.

For United Kingdom:
B→C→go off (DOLBY NR OFF)
└───────┘

For others:
IN→OUT
└────┘

4 REVERSE MODE

Press REVERSE MODE to select the reverse mode.

⊏⊐: One side will record, and then the tape will stop automatically at the tape end.

⊂⊃: Both sides will record (forward side→reverse side), and then the tape will stop automatically at the tape end.

5 CCRT

Press CCRT to activate the CCRT function.
(Computer Control Record Tuning—see page 21).
You can record without using the CCRT function.

When the CCRT function is activated, the test signal for adjustment will be recorded on the tape, so the previous recording will be automatically erased.

CCRT
↓
ON
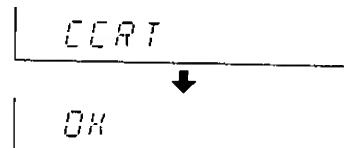
6 ● REC PAUSE

Press REC PAUSE to put the cassette deck into the recording standby mode.
REC PAUSE indicator will light.

7 FM TUNER LW/MW

Press FM or LW/MW on the tuner/sound processor to put the tuner/sound processor into the tuner mode.

8

Press ◁ SELECT or SELECT ▷ on the tuner/sound processor to tune in the desired station.
You can also select the station with manual tuner operation.

9

Press ◁ or ▷ to start recording.
▷: When recording on either the forward side or both sides
◁: When recording only the reverse side

To stop recording:
Press □.

To cut an unnecessary part while recording:
1. Press REC PAUSE.
   The cassette deck will go into the recording standby state.
2. To resume recording, press ◁ or ▷ corresponding to the direction in which recording is taking place.

For Your Recording from Compact Discs

There are 2 ways to record from compact discs, synchro-recording and one-touch editing.

Synchro-recording (See page 24.)

The system records tracks in the original sequence without calculating the tape length. You can record as many tracks as you like using this mode.

When you want to record on the remaining portion of the pre-recorded tape, use the synchro-recording.

1st track

(Side A) | 1 | 2 | 3 | 4 | 5 |

(Side B) | 5 | 6 | 7 | 8 |

Remainder of track
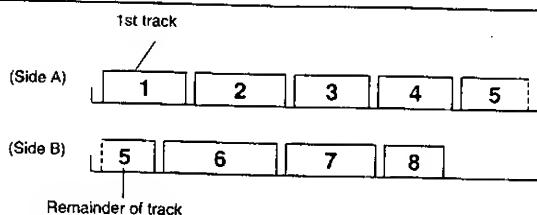
One-touch editing (See page 25.)

The system calculates the length of the tape used, and safeguards against a break in the continuity of sound when the recording changes from one side of the tape to the other side.

■ Editing of all tracks in their original sequence (ALBUM)

If the system determines it is possible to record one more track on side A, the cassette deck rewinds the tape side A and the first track assigned on the tape side B will be recorded on the tape side A.
Up to 24 tracks can be edited.

First arranged   1st track   Blank

(Side A) | 1 | 2 | 3 | 4 |

(Side B) | 5 | 6 | 7 | 8 |

↓

Re-arranged   1st track

(Side A) | 1 | 2 | 3 | 4 | 5 |

(Side B) | 6 | 7 | 8 |
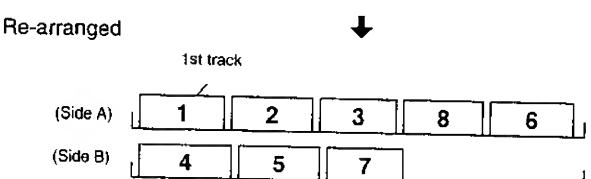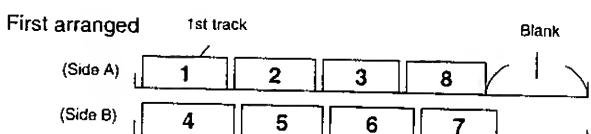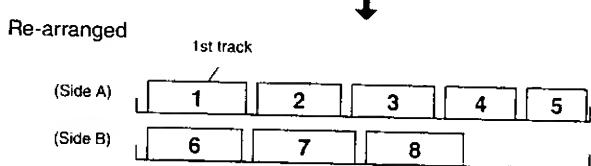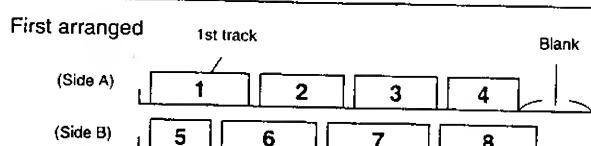
■ Allotting tracks to the tape without wasting tape space (J. FIT)

If the amount of blank space is too great, the cassette deck rewinds the tape side A and the CD changer selects a track which is the most appropriate fit for the end of tape side A.
Up to 24 tracks can be edited.

First arranged   1st track   Blank

(Side A) | 1 | 2 | 3 | 8 |

(Side B) | 4 | 5 | 6 | 7 |

Re-arranged   ↓

1st track

(Side A) | 1 | 2 | 3 | 8 | 6 |

(Side B) | 4 | 5 | 7 |
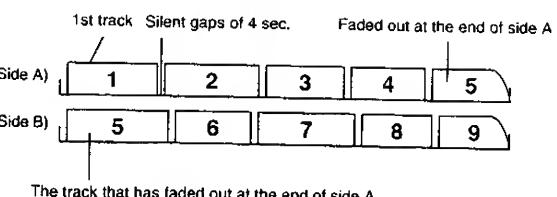
■ Closing up the tape-end unrecorded sections (LAST FADE)

At the end of side A of the tape, a track that cannot be recorded completely will be faded out, and then recorded from the beginning of side B. During recording, silent gaps of approximately 4 seconds are automatically inserted between tracks (auto space function). You can edit as many tracks as you like using this mode.
You can edit the desired tracks of the desired discs using the program play procedure.
(See "Program edit-recording" on page 26.)

1st track   Silent gaps of 4 sec.   Faded out at the end of side A

(Side A) | 1 | 2 | 3 | 4 | 5 |

(Side B) | 5 | 6 | 7 | 8 | 9 |

The track that has faded out at the end of side A

• Linking up several discs (LINK)

After the edit-recording of loaded CDs have finished, you can subsequently edit-record other CD(s) on the remaining blank portion of the tape.
This function is convenient when recording from 8 cm CDs successively.

1st track   1stCD

(Side A) | 1 | 2 | 3 | 8 | 6 |

1stCD   2ndCD

(Side B) | 4 | 5 | 7 | 1 | 2 |
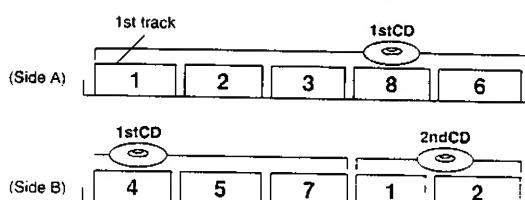
Recording from Compact Discs

Synchro recording

You can use normal, chrome, and metal tapes for recording.
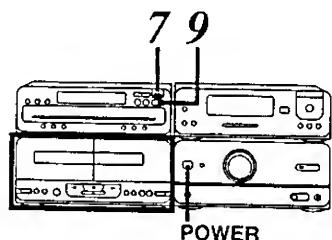
POWER

Check that the tape's tabs (see page 37) are intact, and then insert the cassette into deck 2.
The leader tape must be wound on beforehand. (See page 21.)
Switch on the power.
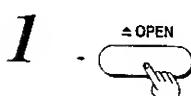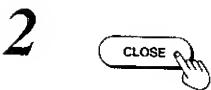
1   ▲OPEN
Press ▲ OPEN to load a cassette in deck 2.

2   CLOSE
**Press CLOSE on deck 2 to close the cassette holder.**

3   DOLBY NR
Press DOLBY NR to select the desired noise-reduction system.
For United Kingdom:
B→C→go off (DOLBY NR OFF)
⌐_____⌐
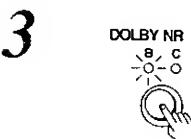
For others:
IN→OUT
⌐_____⌐
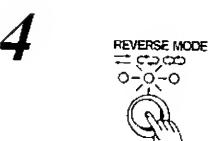
4   REVERSE MODE
Press REVERSE MODE to select the reverse mode you want to use.
⇌: One side will record, and then the tape will stop automatically.
⊃: Both sides will record (forward side→reverse side), and then the tape will stop automatically.

5   CCRT
Press CCRT to activate the CCRT function. (See page 21.)
You can record without using the CCRT function.

```
  C C R T
```
↓
```
  O N
```
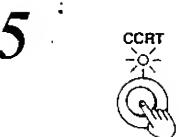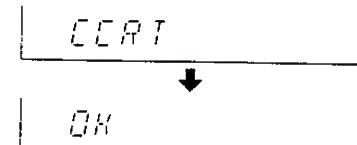
6 **Set the tape travel direction.**
To change the tape travel direction, first press ◁ or ▷ on the cassette deck, then

⊳ : Recording from the forward side.
◁ : Recording from the reverse side.
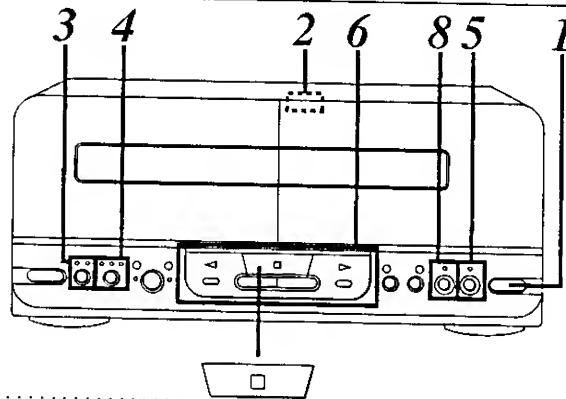
7   ▲OPEN/CLOSE
Press ▲ OPEN/CLOSE to load a disc and then press it again.
When you record from one disc:
Load a disc on the disc tray 1.
When you record from two or three discs:
Load a disc from which you want to edit first on the disc tray 1, and in order 2, 3.

8   ● REC PAUSE
Press REC PAUSE.
The cassette deck will enter the recording standby state.

9   ▷
Press ▷ on the CD changer to start recording.
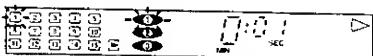
The recording will automatically start corresponding to the tape travel direction indicator.

To stop recording:
Press ☐ on the cassette deck.

After the compact disc play finishes:
When one disc is loaded:
The cassette deck will create a non-recorded passage of about 4 seconds, and then go into the recording standby state.

When two or three discs are loaded:
When there is a blank portion on the tape, the deck will automatically start recording from the next compact disc.

To specify the tracks to be recorded:
1. Follow steps 1 to 7 on this page.
2. Specify the desired discs and tracks using the program play procedure. (See page 17.)
3. Press REC PAUSE.
4. Press ▷ on the CD changer to start recording.

The recording will automatically start.

4

One-touch editing preparation

CD changer

J.FIT   ALBUM   LAST FADE

Cassette deck

The cassette tape will automatically rewind the tape back to the beginning where the recording can be made. So you don't have to rewind the tape in advance.
CCRT function will be automatically activated.

1 ≜OPEN — **Press ≜ OPEN to load a cassette in deck 2.**
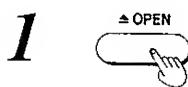
2 CLOSE — **Press CLOSE on deck 2 to close the cassette holder.**
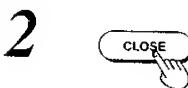
3 DOLBY NR B C — **Press DOLBY NR to select the desired noise-reduction system.**
For United Kingdom:
  B→C→go off (DOLBY NR OFF)
For others:
  IN→OUT
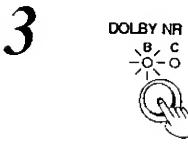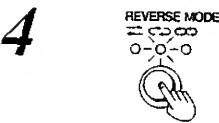
4 REVERSE MODE — **Press REVERSE MODE to select "⊂⊃" for automatic two-sided recording.**

5 ≜OPEN/CLOSE — **Press ≜ OPEN/CLOSE to load disc(s).**
When you edit from one disc:
Load a disc on the disc tray 1.
When you edit from two or three discs:
Load a disc from which you want to edit first on the disc tray 1, and in order 2, 3

To start one-touch editing

Be sure to finish the procedure of "One-touch editing preparation" on the left.

Editing of all tracks in their original sequence (ALBUM)

J.FIT ALBUM LAST FADE   **Press ALBUM.**

"ALBUM"

The recording will start after the system completes the "One-touch editing operation" below.

Allotting tracks to the tape without wasting tape space (J.FIT)

J.FIT ALBUM LAST FADE   **Press J.FIT.**

"J.FIT"

The recording will start after the system completes the "One-touch editing operation" below.

Closing up the tape-end unrecorded sections (LAST FADE)

J.FIT ALBUM LAST FADE   **Press LAST FADE.**

"LAST FADE"

The recording will start after the system completes the "One-touch operation" below.

To cancel one-touch editing:
Press ☐ on the cassette deck.
The compact disc changer also stops.

One-touch editing operation:
1. The cassette deck will fast-forward and rewind to measure its length. At the same time, CCRT function will be activated. (See page 21.)
2. The cassette deck will automatically advance the tape beyond the leader tape, and then stop.
3. The compact disc changer automatically scans for the peak (highest) level of the entire disc (**Automatic Tape Level Setting—ATLS**), then recording will start. ATLS is the function which scans (fast search) for the peak (highest) level of the disc, and sets the appropriate recording level. When ATLS is activated, no sound will be heard.
It takes about 70 seconds to complete ATLS for a compact disc of 60 minutes.

25

Program edit-recording (LAST FADE mode only)

You can record the desired tracks of the desired disc(s) on the CD tray using LAST FADE mode.

The cassette deck will automatically rewind the tape back to the beginning where the recording can be made. So you don't have to rewind the tape in advance.
CCRT function will be automatically activated.
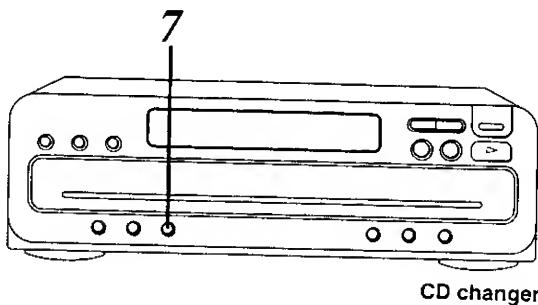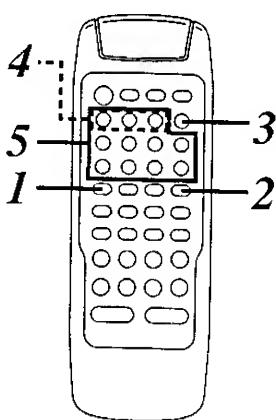
Be sure to finish the procedure of "One-touch editing preparation" on page 25.

1 〈CD〉 **Press CD.**

2 〈PROGRAM〉 **Press PROGRAM.**
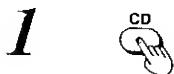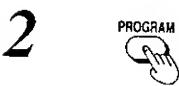
3 〈DISC〉 **Press DISC.**
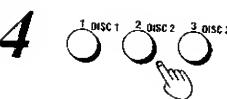
4 〈¹DISC1 ²DISC2 ³DISC3〉 **Press one of the disc buttons (DISC 1~3) to select disc number.**
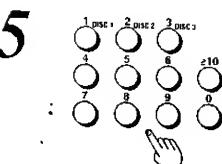
5 〈numeric buttons〉 **Press the numeric button to select the track you want to record.**

6 **Repeat steps 3–5 to complete the program.**

7 〈J.FIT ALBUM LAST FADE〉 **Press LAST FADE.** The recording will start after the system completes the "One-touch editing operation" on page 25.

To stop recording:
Press □ on the cassette deck.

After the compact disc play finishes:
The cassette deck will create a non-recorded passage of about 4 seconds, and then go into the recording standby state.
To finish recording, press □ on the compact disc changer.

When "F" appears on the display:
The number of programmed tracks is limited to 24. No further tracks can be programmed.

To select a two-digit track:
Press ≥10, and then press the numeric button corresponding to the desired track number.
For example:
Track 13: ≥10→1→3
Track 20: ≥10→2→0

CD changer

- Use a tape of under 99 minutes.
- You cannot edit-record tracks numbering higher than 24. (Except for LAST FADE mode)
- When there are tracks allotted on tape side B, the cassette deck will continue recording a blank portion on tape side A until the end of the side.

To specify the tracks to be edited from one disc:

You can specify the tracks to be edited from one disc using the program play procedure.

After completing step 5 on page 25:
1. Press CD on the remote control.
2. Press PROGRAM on the remote control, and then specify the tracks to be recorded in the desired sequence.
3. Press one of the one-touch editing buttons (ALBUM, J.FIT, LAST FADE) to start editing.

Note

You can program up to 24 tracks (and also tracks numbering lower than 24).
"F" appears on the display if you try to program more than 24 tracks.

After the edit recording has finished:

When one disc is loaded:
The deck automatically enters the recording standby mode. When "LINK" indicator flashes, it means you can edit tracks from the same or another disc in succession.

When two or three discs are loaded:
When there is a blank portion on the tape, the deck will automatically start recording from the next compact disc.
When "LINK" indicator flashes after the edit-recording of all the loaded discs, it means you can edit tracks from the same or another disc(s) in succession.

To finish recording:

Press □ on the CD changer and "LINK" indicator goes off.

Linking up several discs (LINK)

When "LINK" indicator flashes after the edit-recording of loaded disc(s) has finished, you can subsequently edit-record the same or another disc(s) on the remaining blank portion of the tape.

CD changer
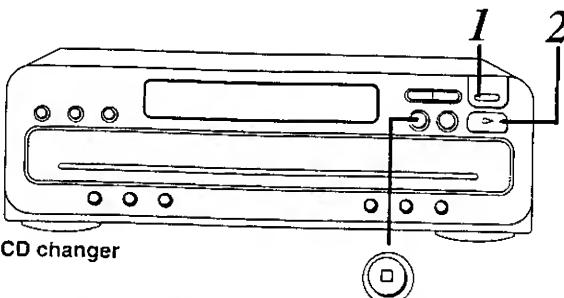
Finish the first edit-recording of the loaded disc(s).
....
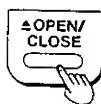
1 Press ▲ OPEN/CLOSE to re-place disc(s) and press it again.

The time remaining on the tape

"LINK"

....
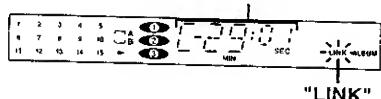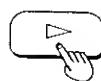
2 Press ▷.

The recording will start from the disc on the disc tray 1, with the same editing mode of the first disc.
The system will assign tracks to be recorded on the remainder of the tape and display the results.

Tracks to be recorded on tape side A
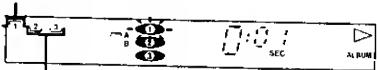
Track to be recorded on tape side B

The recording will start after the system completes the ATLS (see "One-touch editing operation" on page 25) setting.
....

3 Repeat steps 1-2 to record more discs.

To cancel the LINK function:
Press ⊏.

To specify the tracks to be edited:
(Steps 1-5 are available only from the remote control.)
1. Press CD.
2. Press PROGRAM.
3. Press DISC.
4. Press one of the numeric buttons (1-3) to select disc number.
5. Press numeric buttons to specify the tracks you want to record.
6. Press ▷ to start recording.

Notes
- When you record the first compact disc using LAST FADE, tracks to be recorded will not be displayed. However, it is possible to record from another disc.
- When the display shows "0:00", you cannot record from another disc. Press ⊏ to cancel the edit mode.
- If the time remaining on the tape is shorter than the length of the tracks to be recorded, you cannot record the tracks. Replace the disc with the tracks shorter than the time remaining on the tape or press ⊏ to cancel the edit mode.

Tape-to-Tape Recording

The recording level and the noise reduction effect of the original (playback) tape will be recorded on the new tape.
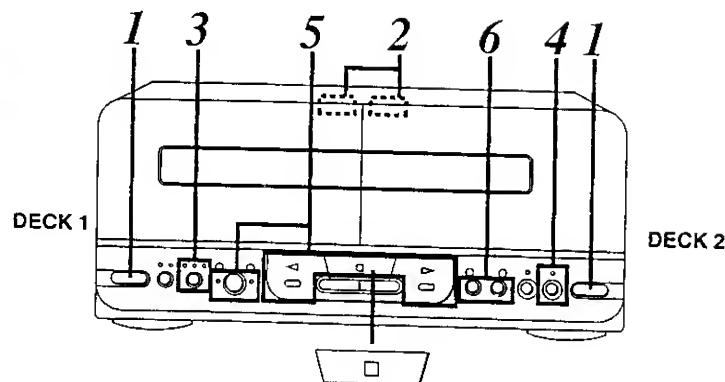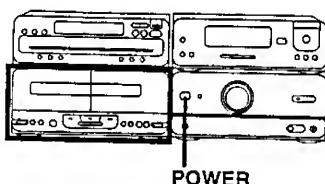
POWER

DECK 1   DECK 2

The leader tape must be wound up beforehand. (See page 21.)
Switch on the power.
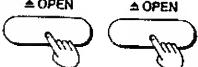
1 ▲OPEN ▲OPEN **Press ▲ OPEN on the both decks, and then insert the tapes.**
For playback: Into deck 1
For recording: Into deck 2

2 CLOSE CLOSE **Press CLOSE to close each deck's holder.**

3 REVERSE MODE **Press REVERSE MODE to select the reverse mode.**
⊏⊐:Single-sided recording
⊂⊃:Two-sided recording
(forward side→reverse side)
In case the tape length in deck 2 is longer than a tape in deck 1, deck 1 repeats the playback until deck 2 completes the two-sided recording. (8 times max.)
⊂⊃: Two-sided recording
(forward side→reverse side)

4 CCRT **Press CCRT to activate the CCRT function.** (See page 21.)
You can record without using the CCRT function.

CCRT
↓
ON
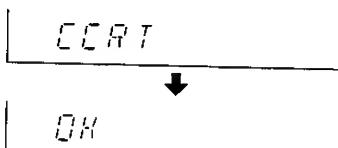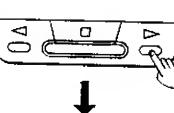
5 ◁ □ ▷ **Set the tape direction to "▷" of deck 1 and 2.**
Press DECK 1/2 and confirm both deck's tape directions are "▷".
To change the tape direction, first press ·· and then □.
To record on the reverse side, set deck 2 to "··".
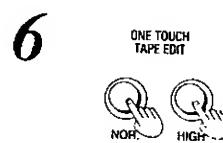
6 ONE TOUCH TAPE EDIT **Press NOR. or HIGH of ONE TOUCH TAPE EDIT to start recording.**
NOR.: When you wish to monitor the sound while recording
HIGH: When you wish to record at high speed (about 2.0 times normal speed)

While recording, both deck 1 and 2 indicators light. Tape direction indicator shows deck 2 direction.
After recording has finished, both decks will stop.

To stop recording:
Press □.
Both decks will stop.

To enjoy another source while recording:
Press ▷ on the CD changer or FM or LW/MW on the tuner/sound processor, and start the sound source.
You can change the volume level and tone quality without affecting the recording.

Notes
- Some TV sets generate noise that could be recorded during tape-to-tape recording. To prevent the possibility of this, do not use this system close to a TV set.
- Do not press ALBUM, J.FIT, LAST FADE during tape-to-tape recording. It changes the tape-to-tape recording to the CD edit recording mode.
- You cannot record with the desired equalization curve during tape-to-tape recording.

For your reference:
For optimum results, use an editing tape of the same or higher quality than the playback tape.

28

Changing the Tone
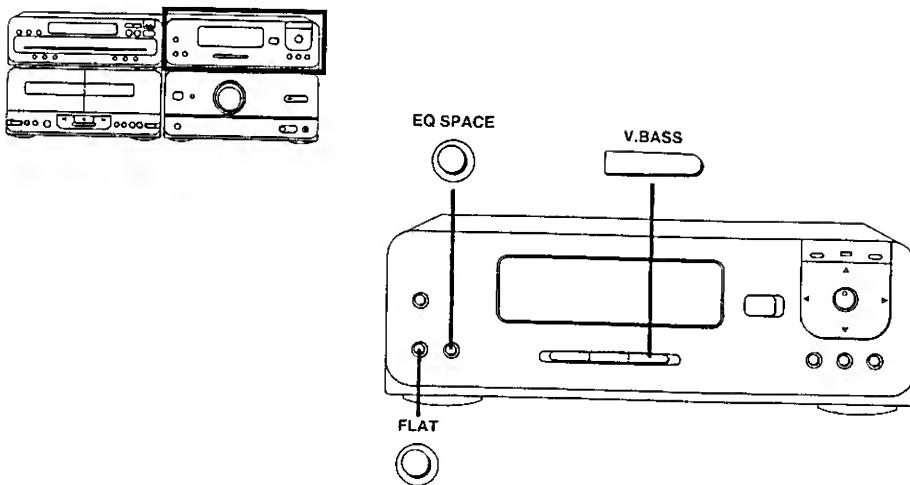
To retrieve the equalization curves and simulated listening environments

EQ SPACE

Press EQ SPACE to select the mode.

Each time you press EQ SPACE, EQ and SPACE modes will be switched as follows.

HALL→HEAVY→CLEAR→CAR→HP ST

1 HALL
Use to impart a deep bass and spread which will make you feel as if you were in a large concert hall.

2 HEAVY
Use to add "punch" to rock and other music.

3 CLEAR
Use to clarify the treble range of jazz, etc.

4 CAR (CAR STEREO)
Use to record a tape for playback using the car audio system (Car stereo).

5 HP ST (HEADPHONES STEREO)
Use to record a tape for playback using the stereo cassette player (Headphones Stereo).

To cancel the EQ and SPACE mode:
Press FLAT to set to "FLAT".

FLAT

Note

You cannot record with HALL, HEAVY or CLEAR mode.

For your reference:
You can record with desired equalization curves (CAR or HP ST). To playback such recordings, press FLAT to set to "FLAT".

To listen with augmented bass (V. BASS)

V.BASS

Press V. BASS.

To cancel the V. BASS effect, press V. BASS once again.
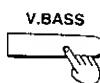
Note

You cannot record with the V. BASS effect.
"V. BASS" effect added only to the sound heard through the speakers or headphones.

Using the Timer

Setting the play timer

Make sure that you have completed "Setting the Time" on page 10.
Select this timer when you want to use the timer as an alarm clock.
You can wake up with listening to music (CD, tuner, tape) at a
desired volume level and time.

POWER **9**

1   2~7
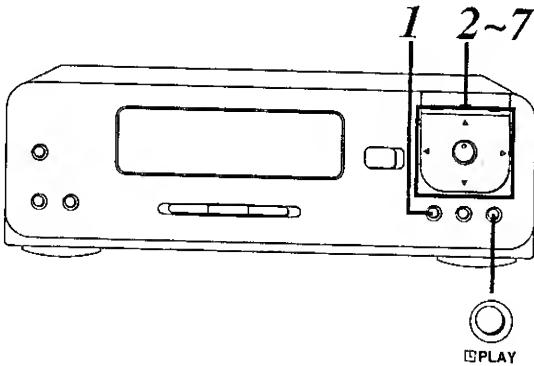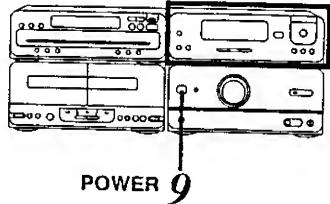
⊡PLAY

The following example in the figure shows how to set the play timer
for; playing a CD at −40 dB everyday from Monday through Friday
6:30 to 7:40.
Switch on the power.
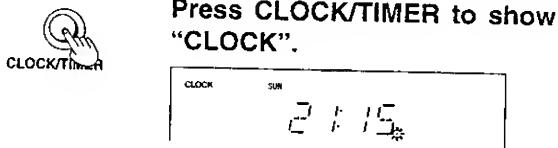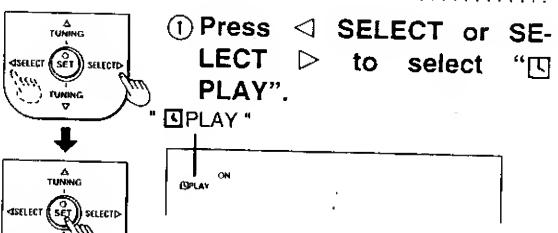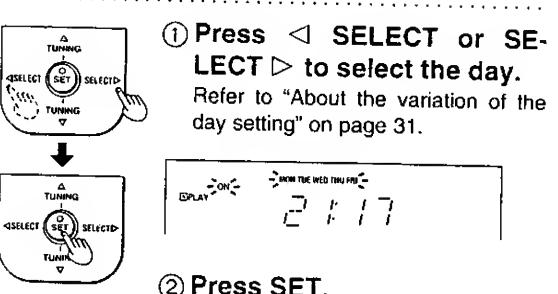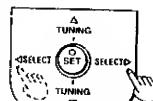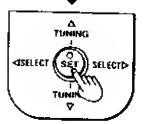
1 Press CLOCK/TIMER to show "CLOCK".

CLOCK/TIMER

Within 8 seconds:

2 ① Press ◁ SELECT or SELECT ▷ to select "⊡ PLAY".
" ⊡PLAY "

Within 8 seconds:
②.Press SET.

3 ① Press ◁ SELECT or SELECT ▷ to select the day.
Refer to "About the variation of the day setting" on page 31.

② Press SET.

4 ("ON" time setting)
① Press ◁ SELECT or SELECT ▷ to select the hour.

② Press SET.

③ Press ◁ SELECT or SELECT ▷ to select the minutes.

④ Press SET.

5 ("OFF" time setting)
① Press ◁ SELECT or SELECT ▷ to select the hour.

② Press SET.

③ Press ◁ SELECT or SELECT ▷ to select the minutes.

④ Press SET.

6
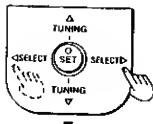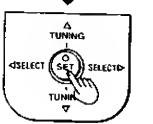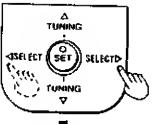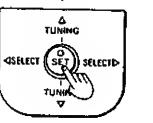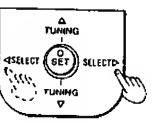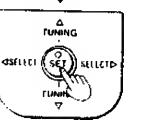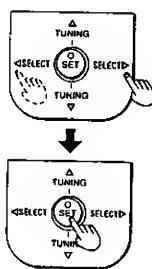
① **Press ◁ SELECT or SE-LECT ▷ to select the desired source.**
Each time you press SELECT ▷, sources will be switched as follows.
CD→TAPE→TUNER
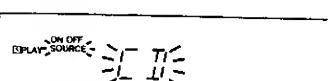
② **Press SET.**
When you select "TUNER", select a desired preset channel using ◁ SELECT or SELECT ▷, and then press SET.

7
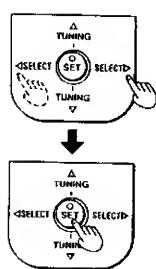
① **Press ◁ SELECT or SE-LECT ▷ to select the volume level for the timer play.**
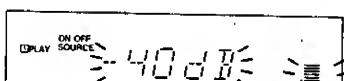
② **Press SET.**

8

Prepare for the play.
When you play a CD: Load a CD.
When you play a tape: Load a tape.

9

Press POWER to switch the power to standby mode.
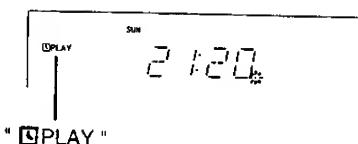
" ⓣPLAY "

Please confirm "⊡ PLAY".
The timer play will start at the preset time with volume increasing gradually up to the volume level you preset.

To cancel the timer:
Press ⊡ PLAY to go out "⊡ PLAY".

If you make an error:
Press CLOCK/TIMER twice to return to step 2.

About the variation of the day setting:
One day from
  Sunday to Saturday: SUN...SAT
Everyday from
  Sunday to Saturday: SUN–SAT
Everyday from
  Monday to Saturday: MON–SAT
Everyday from
  Monday to Friday: MON–FRI
Saturday and
  Sunday only: SUN. SAT

To confirm the play timer:
1. Press CLOCK/TIMER to show "CLOCK".
2. Press ◁ SELECT or SELECT ▷ to show "⊡ PLAY".
The display will show the ON time, OFF time, the source you select, and the volume level alternately.

(While in the power standby mode)
1. Press CLOCK/TIMER to show "⊡ REC".
2. Press ◁ SELECT or SELECT ▷ to show "⊡ PLAY".

To change the play timer setting:
Follow the procedure from the first step.

Using the timer at the same time setting continuously:
You can accomplish this even if the system is in the standby mode.
The play timer setting will stay in the memory.
1. Press ⊡ PLAY to show "⊡ PLAY".
2. Press POWER to switch the power to standby mode.

To enjoy the desired source after the timer setting is completed:
1. Start playing the desired source.
Even if you change the volume level or music source, the timer play will start with the preset condition.
2. Press POWER to standby mode after enjoying the play.

Notes

●This system retains the ON/OFF time settings until you make a new setting. If you make a new ON time setting, the previous OFF time setting will change to the same setting.
●You cannot make the ON time and OFF time same setting.
●If the power is on, the timer will not function. The system must be in the standby mode.
●The play timer will function until you cancel the play timer mode. When the display shows "⊡ PLAY", the play timer will be activated.
●If you switch the power to standby mode while play timer is functioning, the OFF time setting will not be activated.

For your reference:
When you insert cassettes in both deck 1 and 2. deck 1 has priority for timer play on tape.

Setting the record timer

Make sure that you have completed "Setting the Time" on page 10.
Select this timer when you want to use the timer to record a midnight program or while you are out. The system will record a desired radio broadcast at a desired time.

POWER 8

☐REC

1   2~6
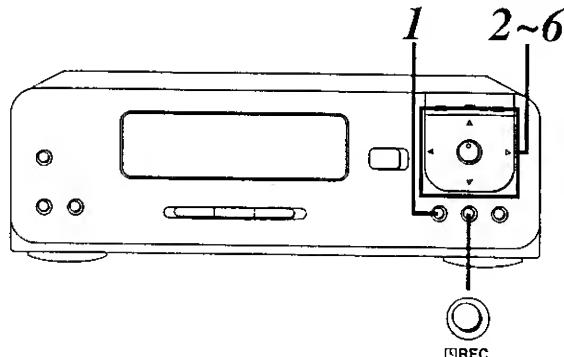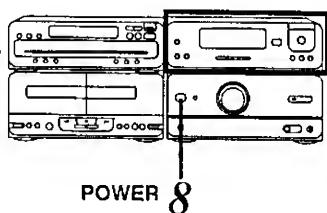
The following example in the figure shows how to set the record timer for; recording preset channel no. 1 on Saturday from 18:30 to 20:00.

Switch on the power.

1

CLOCK/TIMER

Press CLOCK/TIMER to show "CLOCK".

Within 8 seconds:

2
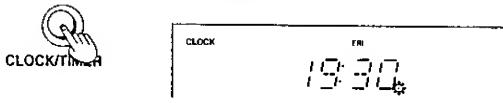
① Press ◁ SELECT or SE-LECT ▷ to select "☐ REC".
" ☐REC "
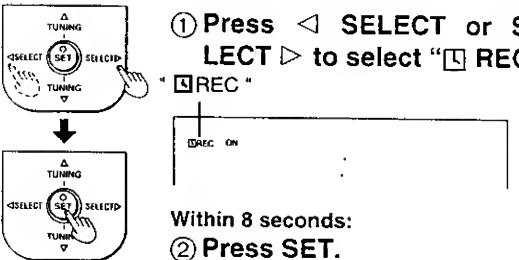
Within 8 seconds:
② Press SET.

3

① Press ◁ SELECT or SE-LECT ▷ to select the day.
Refer to "About the variation of the day setting" on page 33.
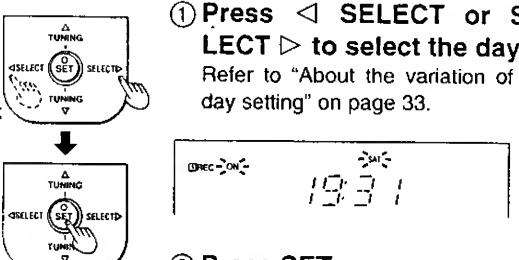
② Press SET.

4

("ON" time setting)
① Press ◁ SELECT or SE-LECT ▷ to select the hour.
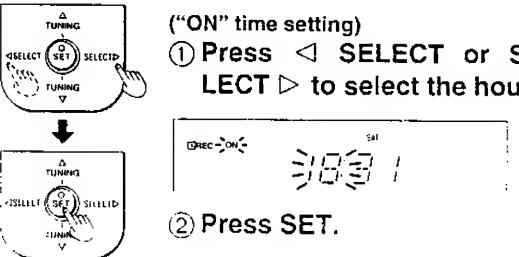
② Press SET.

③ Press ◁ SELECT or SE-LECT ▷ to select the minutes.

④ Press SET.

5

("OFF" time setting)
① Press ◁ SELECT or SE-LECT ▷ to select the hour.

② Press SET.

③ Press ◁ SELECT or SE-LECT ▷ to select the minutes.

④ Press SET.

6
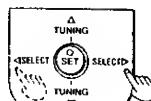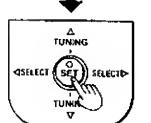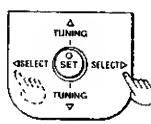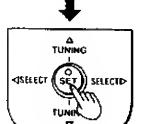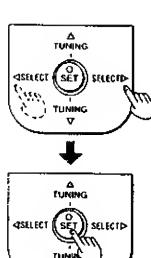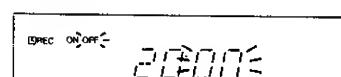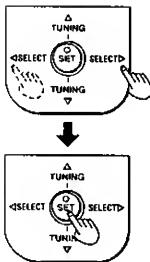
① **Press ◁ SELECT or SE-LECT ▷ to select the desired preset channel.**
Each time you press SELECT ▷, the preset channel will be switched as follows.
CH1→CH2...CH38→CH39
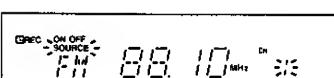
If you press ◁ SELECT, the reverse operation will take place.

② **Press SET.**

7

Prepare for recording.
1. Insert a tape into deck 2.
2. Select the Dolby NR mode.
3. Select the reverse mode.
4. Select the tape travel direction.

8

Press POWER to switch the power to standby mode.

" ⧆REC "
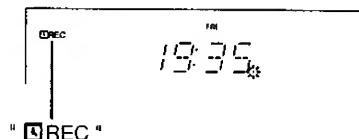
Please confirm "⧆ REC".
The sound will be automatically muted during timer recording.

To cancel the timer:
Press ⧆ REC to go out "⧆ REC".

If you make an error:
Press CLOCK/TIMER twice to return to step 2.

About the variation of the day setting:
One day from
   Sunday to Saturday: SUN...SAT
Everyday from
   Sunday to Saturday: SUN-SAT

To confirm the record timer:
1. Press CLOCK/TIMER to show "CLOCK".
2. Press ◁ SELECT or SELECT ▷ to show "⧆ REC".
The display will show the ON time, OFF time, the broadcast station you select alternately.

(While in the power standby mode)
Press CLOCK/TIMER to show "⧆ REC".

To change the record timer setting:
Follow the procedure from the first step.

Using the timer at the same time setting continuously:
You can accomplish this even if the system is in the standby mode.
The record timer setting will stay in the memory.
1. Press ⧆ REC to show "⧆ REC".
2. Press POWER to switch the power to standby mode.

To enjoy the desired source after the timer setting is completed:
1. Start playing the desired source.
   When listening to a cassette tape, use the deck 1.
   Even if you change the music source, the timer recording will start with the preset condition.
2. Press POWER to standby mode after enjoy the play.

Notes

● This system retains the ON/OFF time settings until you make a new setting. If you make a new ON time setting, the previous OFF time setting will change to the same setting.
● You cannot make the ON time and OFF time same setting.
● If the power is on, the timer will not function.
● Once the record timer operation finishes, it clears the record timer mode (except for everyday mode "SUN-SAT"). When the display shows "⧆ REC", the record timer will be activated.
● If you switch the power to standby mode while record timer is functioning, the OFF time setting will not be activated.

For your reference:
When you want to record a same program over several weeks (except when you select everyday mode "SUN-SAT"), press ⧆ REC to show "⧆ REC" after the timer recording has finished.

Using the Timer

To use the sleep timer

Select this timer when you want to use the timer to stop the music automatically as you can fall asleep while listening. The system will go into power standby mode after assigned time has passed (within 1~120 minutes).

Tuner/sound processor
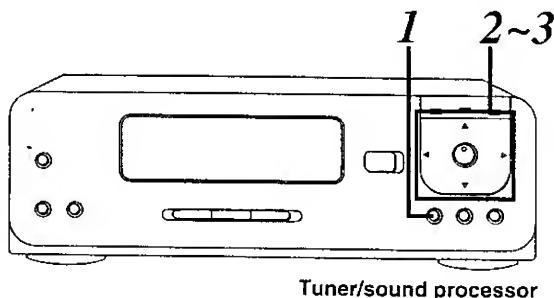
The following example in the figure shows how to set the system to standby mode after 30 minutes.

1

While enjoying the desired source:
Press CLOCK/TIMER to show "CLOCK".
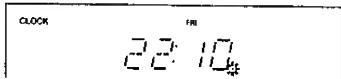
Within 8 seconds:

2
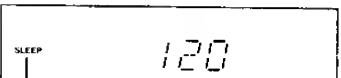
① **Press ◁ SELECT or SELECT ▷ to select "SLEEP".**

" SLEEP "

Within 8 seconds:
② **Press SET.**

3
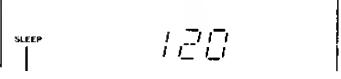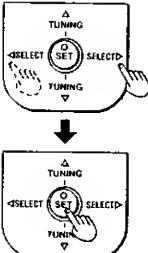
① **Press ◁ SELECT or SELECT ▷ to select the desired length of time.**
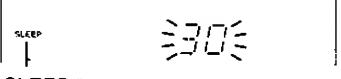
" SLEEP "

② **Press SET.**
Please confirm "SLEEP".
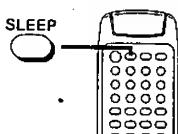
To cancel the timer:
(Available only from the remote control)
Press SLEEP on the remote control to go out "SLEEP".

To confirm the sleep timer:
1. Press CLOCK/TIMER to show "CLOCK".
2. Press ◁ SELECT or SELECT ▷ to select "SLEEP".
   The display will show the time remaining on the sleep timer.

To confirm the memorized time:
(While in the power standby mode)
1. Press CLOCK/TIMER to show "☐ REC".
2. Press ◁ SELECT or SELECT ▷ to show "SLEEP".

To change the time setting while sleep timer is functioning:
Follow procedure from the first step.

If you want to operate the system again on the same sleep time:
(Available only from the remote control)
The sleep timer setting will stay in the memory.
Press SLEEP on the remote control to show "SLEEP".

To use each timer mode in conjunction

To go to sleep listening to an FM broadcast and wake up the next morning listening to a CD
1. Make a play timer setting for a CD.
2. Tune in the desired band and station, and adjust the volume level.
3. Make a sleep timer setting, and set the sleep time.

To make a timer recording from a radio broadcast while sleeping, and wake up the next morning listening to a tape
1. Make a record timer setting.
2. Make a play timer setting for deck 1, and switch the power to standby mode. (Select "⊂⊃" of the reverse modes.)
   Be sure to set the record timer to be off before the play timer will begin.

To go to sleep listening to a CD, and then to make a timer recording from a radio broadcast
1. Make a record timer setting.
2. Play a CD, and adjust the volume level.
3. Make a sleep timer setting, and set the sleep time.
   Be sure to set the system into standby mode before the timer recording will begin.

To go to sleep listening to a tape, and wake up the next morning listening to a CD, and record from a radio broadcast while going out
1. Make a record timer setting.
2. Make a play timer setting for a CD.
   Be sure to set the timer play to be off before the timer recording will start.
3. Play back the tape in deck 1, and adjust the volume level.
   (Select "⊂⊃" of the reverse modes.)
4. Make a sleep timer setting, and set the sleep time.

Timer sequence priority:
Sleep timer, record timer, play timer is the timer operation of priority in order. Be sure not to make each timer setting overlap.

For your reference:
● When the OFF time of the record timer and the ON time of the play timer are the same, both timers will function.
● When the OFF time of the play timer and the ON time of the record timer are the same, both timers will function.

4

Enjoying the Microphone Mixing

This function mutes the vocal track but leaves the accompaniment allowing you to enjoy KARAOKE (singing with an accompaniment).
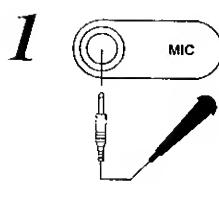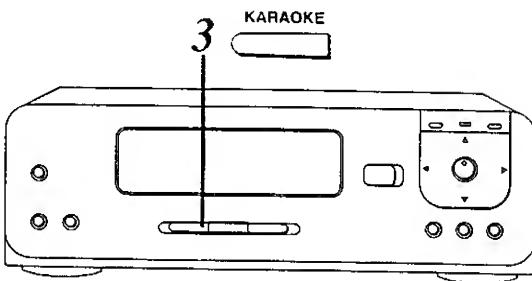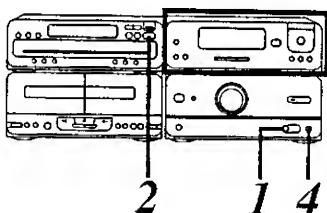
1 Connect the microphone to the MIC jack after reducing the volume level.
Plug type: M6 MONO type

2 Start playing a CD and so on.
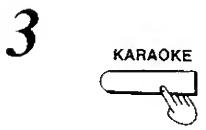
3 Press KARAOKE to select a mode.
Each time you press KARAOKE, KARAOKE mode will be switched as follows.
VOICE MUTE→MONO.L→MONO.R
↑————light off (OFF)←————↓

VOICE MUTE

FLAT ──KARAOKE── VOICE MUTE

MONO • L

FLAT ──KARAOKE── MONO•L

MONO • R

FLAT ──KARAOKE── MONO-R

OFF

FLAT
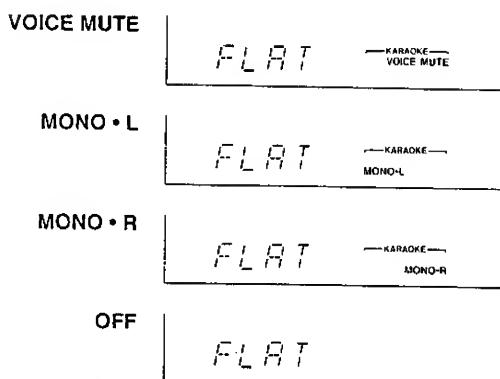
VOICE MUTE	You can use a normal CD.
MONO.L or MONO.R	You can use a sound multiplex CD, or multiplex tape.
Light off (OFF)	You can use normal karaoke CD, a normal karaoke tape.
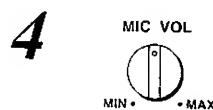
4 Start microphone mixing, and adjust the microphone level.
MIC VOL
MIN • MAX

To cancel the "KARAOKE" mode:
Press KARAOKE to go out the KARAOKE mode indicator.
When "VOICE MUTE" lights: Press 3 times.
When "MONO.L" lights: Press twice.
When "MONO.R" lights: Press once.

To record of your "KARAOKE" performance:
Start recording in deck 2, then start "KARAOKE" performance.
To playback the tape recorded in "KARAOKE" mode, press KARAOKE to go out the KARAOKE mode indicator.

You cannot use "KARAOKE" function with:
a tone quality effect (equalization curve, simulated listening environment effect)
a radio source

You cannot record in "KARAOKE" mode using:
a tone quality effect (equalization curve, simulated listening environment, and V. BASS effect)
a radio and a tape sources

Notes

● This function may not be effective according to the type of music.
● During CD edit recording, you cannot alter the KARAOKE mode.
● If you hear strange noises (squealing or howling) during mixing, move the microphone farther away from the speakers or turn down the volume and microphone volume on the amplifier.
● When you are not using the microphone, disconnect it from the MIC jack, and turn down the microphone volume level to MIN.
● Do not press KARAOKE when recording on a DCC.

To record your voice:
1. Connect the microphone to the MIC jack.
2. Press SELECTOR to select "TAPE".
3. Press REC PAUSE to put the cassette deck into the recording standby mode.
4. Press ◁ or ▷ to start recording.
5. Speak to the microphone.

Using an External unit

To use headphones

Connect the headphones to the headphones jack.
Before connecting, reduce the volume level.

Amplifier
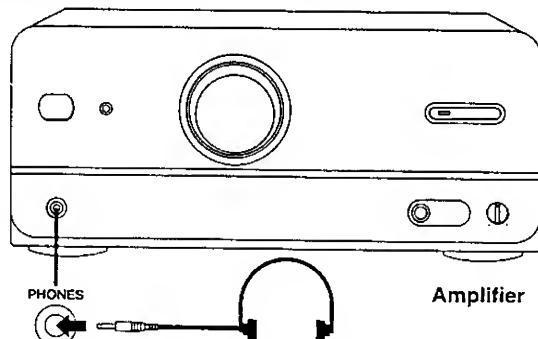
Avoid listening for prolonged periods of time to prevent hearing damage.
Plug type: M3 Stereo type

Listening to an external source

You can connect DCC or analog player to this system.

Tuner/sound processor
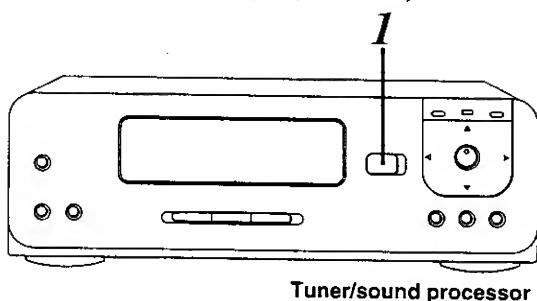
The following example in the figure shows when you select analog player.

1
Press SELECTOR to select "PHONO" or "DCC".
Each time you press SELECTOR, sound sources will be switched as follows.

TUNER→CD→TAPE
↑   ↓
PHONO←———DCC
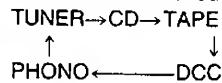
> **Note**
>
> **For areas except United Kingdom:**
> Press SELECTOR to select "AUX" or "DCC".
> Each time you press SELECTOR, sound sources will be switched as follows.
>
> TUNER→CD→TAPE
> ↑   ↓
> AUX←———DCC
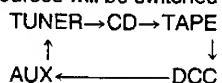
2
Operate the unit which is connected to the system.
See the instruction manual of the unit concerned for the operation.

Recording from an external source
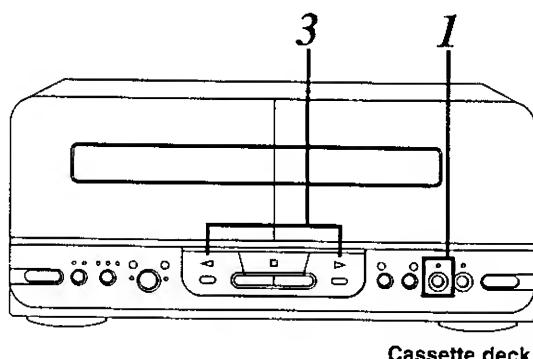
Cassette deck

The following example in the figure shows when you record from an analog player.

1
Press REC PAUSE to put the cassette deck into the recording standby mode.

2
Press SELECTOR to select "PHONO" or "DCC".

For areas except United Kingdom:
Press SELECTOR to select "AUX" or "DCC".

3
Press ◁ or ▷ to start recording.
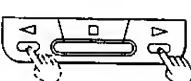
4
Start playing the source to be recorded.
See the instruction manual of the unit concerned for the operation.

To stop recording:
Press □.

To briefly interrupt recording:
Press REC PAUSE.
The cassette deck will go into the recording standby mode.

To resume recording:
Press ◁ or ▷ corresponding to the direction in which recording is taking place.

Recording on a DCC tape

Start recording on a DCC, and then start playing the source to be recorded.

> **Notes**
>
> ● You cannot record the sound with the equalization curve, simulated listening environment, and V. BASS effect on a DCC tape.
> ● Do not press KARAOKE when recording on a DCC.

Troubleshooting Guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.
If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions.

Problem	Probable cause(s)	Suggested remedy
Problems common to all systems		
There is no sound when the power is ON.	Volume is set too low.	Adjust the volume level with the volume control on the amplifier.
The location of the various musical instruments is not well defined.	The (+) and (−) connections to one of the speakers are reversed.	Connect the speaker cord correctly.
The left and right sounds are reversed.	The left and right connections to the speaker are reversed.	Connect the speaker cords correctly.
When listening to the external unit, the left and right sounds are reversed.	The left and right connections to the external unit are reversed.	Connect the external unit's cord correctly.
Only one speaker is emitting sound.	One of the wires of the speaker cord is disconnected.	Connect the speaker cord correctly.
There is no sound when a source is being played.	The (+) and (−) wire of the speaker cords are shorted.	Switch the system to the standby mode, and reconnect the speaker cords so that they are not shorted. Then switch on the power.
"U70" display appears on the CD changer or tuner/ sound processor display.	Flat cables are not connected steadily.	Connect the flat cables steadily. When the "U70" display is not cleared after the flat cables have been connected properly, the unit may be damaged. Consult your dealer.
While listening to FM broadcasts		
There is a "rushing noise" during a stereo broadcast which is not audible during a monaural broadcast.	The transmitting station is a long distance away.	● If you are using an indoor antenna, change to an outdoor antenna. ● If you are using a high-grade outdoor antenna, try changing the installation location, height, and orientation.
You hear excessive noise during a stereo broadcast, and occasionally the sound disappears.	The installation location and orientation of the antenna are unsuitable.	
The stereo indicator flickers and does not light completely.	The transmitting station is a long distance away.	
	The power of the TV set or VCR is ON.	Try switching off the TV set or VCR.
The sound during a stereo broadcast is highly distorted.	There is a building or mountain nearby. [Distortion is caused by interference between the signal from the transmitting station (direct wave) and the signal reflected from the building or mountain (reflected wave).]	Use a high-grade outdoor antenna, and install it in a good location, height, and orientation for reception.
While listening to MW/LW broadcasts		
You hear an unusual beat sound.	You are using the system at the same time you are playing a TV set.	Switch off the TV set, or use the system further away from it.
You hear a low-frequency hum.	The antenna wire is near the power cord.	Separate the antenna wire from the power cord.
When there is a television set nearby		
The picture on the TV disappears or stripes appear on the screen.	The location and orientation of the antenna are incorrect.	If you are using an indoor antenna, change to an outdoor antenna.
	The wiring at the back of the system is unsuitable.	Separate the antenna wire of the TV set from the system.

THIS MUSIC SYSTEM IS CAPABLE OF RECEIVING THE NEW AM STEREO BROADCASTS FROM THE AM BAND RADIO STATIONS. HOWEVER LIKE MANY MUSIC SYSTEM CURRENTLY AVAILABLE ON THE MARKET IT WILL REPRODUCE THIS AM STEREO SIGNAL ONLY IN AM MONO, WHICH, IN EFFECT, IS OF NO LESSER QUALITY THAN YOUR EXISTING AM MONO MUSIC SYSTEM.

Problem	Probable cause(s)	Suggested remedy

While listening to tapes

Sound is low, intermittent,or poor quality, noisy, scratchy, or unsteady.	Heads are dirty.	Clean the heads.
	Dolby noise reductions is set in the wrong position.	Set it to match the Dolby NR recording mode.
The deck does not enter the recording mode. DOLBY NR indicators and REVERSE MODE indicators begin to flash simultaneously, and the cassette deck become incapable of operation.	The erase-prevention tabs are removed from the cassette.	Attach tape to cover the space left by removal of the erase-prevention tabs.
	Malfunction might occur in the cassette deck section.	Contact with your dealer or an Authorized Service Center.

While listening to compact discs

The display will not show the correct indication. Disc play does not start when you press the play button.	The disc is not positioned correctly in the disc tray.	Load the disc on the tray correctly.
	The disc is loaded upside down.	Reload the disc.
	The disc is dirty.	Wipe the disc with a soft cloth.
	The disc is scratched.	Replace the disc with a new one.
	The disc is badly warped.	
	The disc is a nonstandard one.	Replace the disc with a different one.
	There is condensation inside the compact disc changer.	Switch the power ON, and then wait for 60 minutes before using the compact disc changer.

While using the remote control

The system cannot be operated with the remote control.	The batteries are installed in the reverse polarity.	Re-insert the batteries in the correct polarity.
	The batteries are worn.	Replace the batteries with new batteries.

The servicer will require all components to service your system. Therefore, should service ever be necessary, be sure to bring the entire system.

Maintenance

■ Maintenance of external surfaces

To clean this unit, use a soft, dry cloth.
If the surfaces are extremely dirty, use a soft cloth dipped in a soap-and-water solution or a weak detergent solution.

Wring the cloth well before wiping the unit.
Wipe once again with a soft, dry cloth.
Never use alcohol, paint thinner, benzine, or chemically treated cloths to clean this unit. Such chemicals may damage the finish of your system.

■ Tape head care

To assure sound quality for recording and playback, be sure to clean the tape heads after approximately every 10 hours of use.
1 **Press POWER on the amplifier to ON.**
2 **Press ▲ OPEN to open the cassette holder.**
3 **Press POWER on the amplifier and CLOSE at the same time.**
   The system will go into power standby mode leaving the cassette holder open.
4 **Clean the tape heads, pinch rollers and the capstan shafts with a cotton swab (or a soft, lint-free cloth) slightly moistened with isopropyl alcohol.**
   Do not use any solution other than alcohol for head cleaning.

Pinch roller   Cotton swab

Pinch roller

Capstan   Capstan
Heads
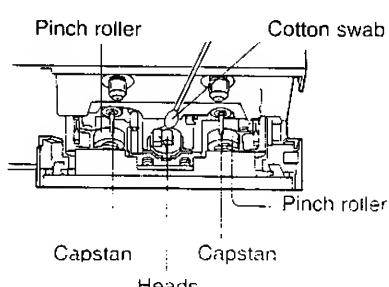
Technical Specifications

TUNER/SOUND PROCESSOR

■ Pre-amplifier section

Input sensitivity/impedance

(For United Kingdom)

PHONO	2.5 mV/47 kΩ
DCC	250 mV/15 kΩ

(For Australia and New Zealand)

AUX	250 mV/15 kΩ
DCC	250 mV/15 kΩ

Output level

DCC RECOUT	150 mV/1.5 kΩ

Frequency response

(For United Kingdom)

PHONO	30 Hz–15 kHz/
	+1.5 to −2.0 dB
DCC	30 Hz–20 kHz

(For Australia and New Zealand)

AUX	30 Hz–20 kHz
DCC	30 Hz–20 kHz

■ EQ, SFP section

Center frequency	200 Hz, 1 kHz, 7 kHz
Fixed mode	
5 modes	HALL, HEAVY, CLEAR, CAR, HP ST

■ FM tuner section

Frequency range	87.50–108.00 MHz
	(0.05 MHz steps)
Sensitivity	1.8 μV (IHF usable)
S/N 26 dB	1.5 μV
S/N	
MONO	70 dB (75 dB, IHF)
Stereo separation	
1 kHz	35 dB
Antenna terminal(s)	75Ω (unbalance)

■ AM tuner section

Frequency range

MW	522–1611 kHz (9 kHz steps)
	530–1620 kHz (10 kHz steps)
LW	144–288 kHz (9 kHz steps)

Sensitivity (S/N 20 dB)

MW	500 μV/m
LW	50 μV

■ Timer section

Clock	Quartz-lock type
Function	24-hour programmable;
	Play timer (1 time), Rec timer (1 time),
	Sleep (120 min., 1 min. intervals)
Setting	1 minute–23 hours 59 minutes
	(1 min. intervals)

■ General

Dimensions (W×H×D)	270×89×274 mm
Weight	1.75 kg

AMPLIFIER

Power output

DIN 1 kHz, THD 1%, both channel driven	2×35 W (6Ω)

Total harmonic distortion

Rated power at 1 kHz	1% (6Ω)
Half power at 1 kHz	0.09% (6Ω)
Load impedance	6Ω
S/N (rated power)	84 dB
Frequency response	40 Hz–30 kHz

■ General

Power consumption	128 W
Power supply	230–240 V, AC 50/60 Hz
Dimensions (W×H×D)	270×118.5×339.5 mm
Weight	4.2 kg

CD CHANGER

■ Audio

DA converter	1 bit 2 DAC MASH

■ Pickup

Wavelength	780 nm

■ General

Dimensions (W×H×D)	270×89×325 mm
Weight	2.9 kg

CASSETTE DECK

Deck system	Stereo cassette deck
Track system	4 track, 2 channel
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase

Heads

Deck 1	
(Playback head)	Permalloy head
Deck 2	
(Recording/Playback head)	Permalloy head
(Erasing head)	Double gap ferrite head

Motors

Deck 1, 2	
Capstan drive	DC servo motor
Reel table drive	DC motor
Tape speed	4.8 cm/sec
Wow and flutter	0.1% (WRMS)
Fast forward and rewind times	Approx. 50 seconds
	with C-60 cassette tape

Frequency response

(Dolby NR off, CCRT on)

NORMAL	20 Hz–17 kHz
	30 Hz–15 kHz (DIN, 0 dB to −7 dB)
CrO₂	20 Hz–18 kHz
	30 Hz–17 kHz (DIN, 0 dB to −7 dB)
METAL	20 Hz–20 kHz
	30 Hz–19 kHz (DIN, 0 dB to −7 dB)

S/N (Signal level=max recording level, CrO₂)

NR off	56 dB (A weighted)
Dolby B NR on	66 dB (CCIR)

(For United Kingdom only)

Dolby C NR on	74 dB (CCIR)

Input sensitivity and impedance

LINE IN	126 mV/17.6 kΩ

Output voltage and impedance

LINE OUT	400 mV/220Ω

■ General

Dimensions (W×H×D)	270×118.5×263 mm
Weight	2.85 kg

SPEAKER SYSTEM (SB-CH610)

Type	3 way, 3 speakers
Speaker(s)	
Woofer:	18 cm active air coupling woofer
	(18 cm passive radiator, 14 cm cone type driver unit)
Main unit:	8-cm cone type
Tweeter	Dome type
Impedance	6Ω
Input power	70 W (music), 35 W (DIN)
Output sound pressure level	79 dB/W (1.0 m)
Cross over frequency	130 Hz, 8 kHz
Frequency range	26 Hz–22 kHz (−16 dB)

■ General

Dimensions (W×H×D)	210×415×281 mm
Weight	4.6 kg

SPEAKER SYSTEM (SB-CH510A)

Type	3 way, 3 speakers BASS-REF
Speaker(s)	
Woofer	14 cm cone type
Midrange	6 cm cone type
Tweeter	Piezo type
Impedance	6Ω
Input power	70 W (music), 35 W (DIN)
Output sound pressure level	84 dB/W (1.0 m)
Cross over frequency	3.3 kHz, 10 kHz
Frequency range	42 Hz–22 kHz (−16 dB)

■ General

Dimensions (W×H×D)	210×414×244 mm
Weight	4.3 kg

Notes:

1. Specifications are subject to change without notice.
   Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

> MASH is a trademark of NTT.

For UK only

This apparatus was produced to BS 800.